

amateur radio action

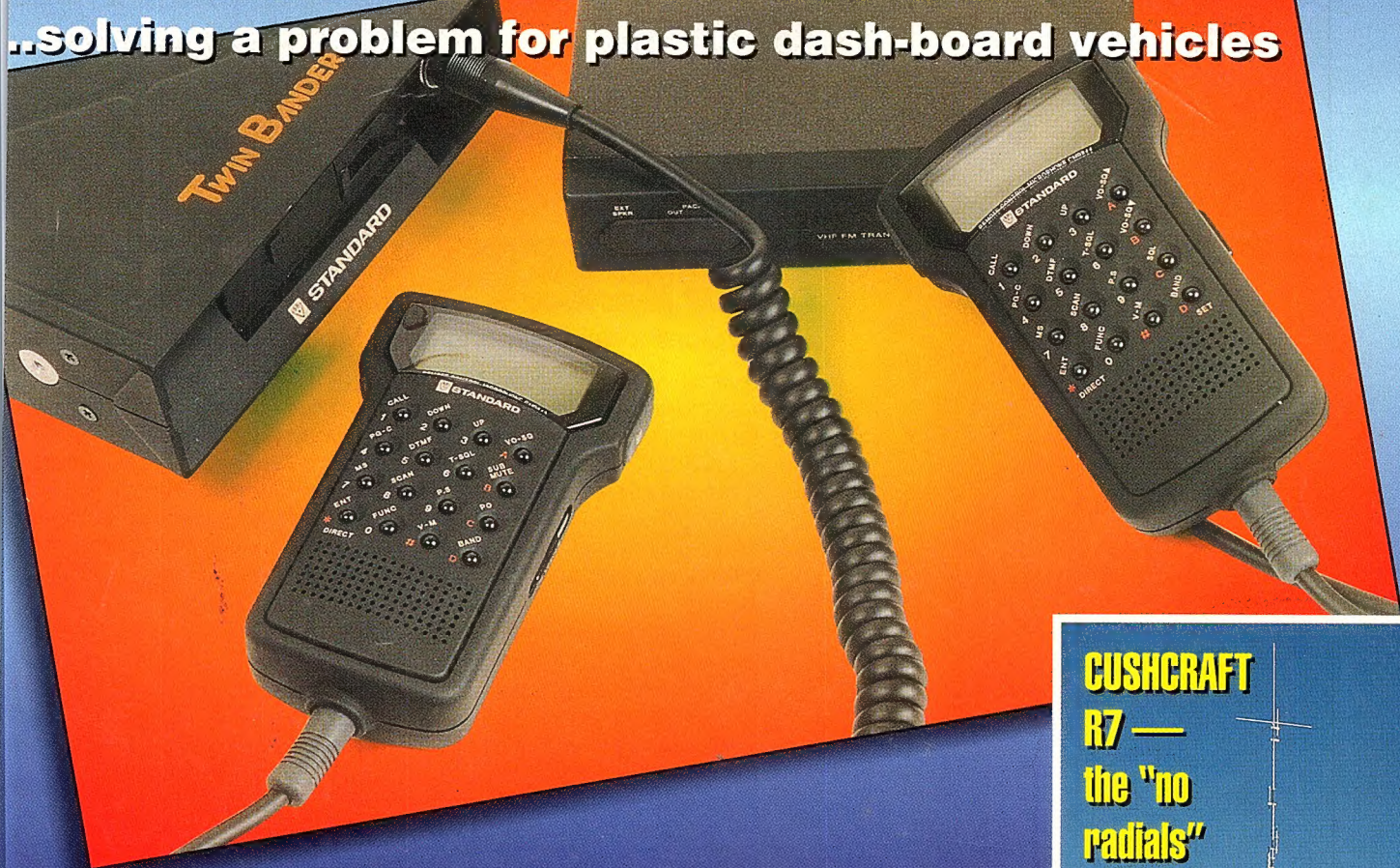
December 1994

Oceania's Amateur Magazine

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Reviewing the Standard C5718D and C1208D

...solving a problem for plastic dash-board vehicles



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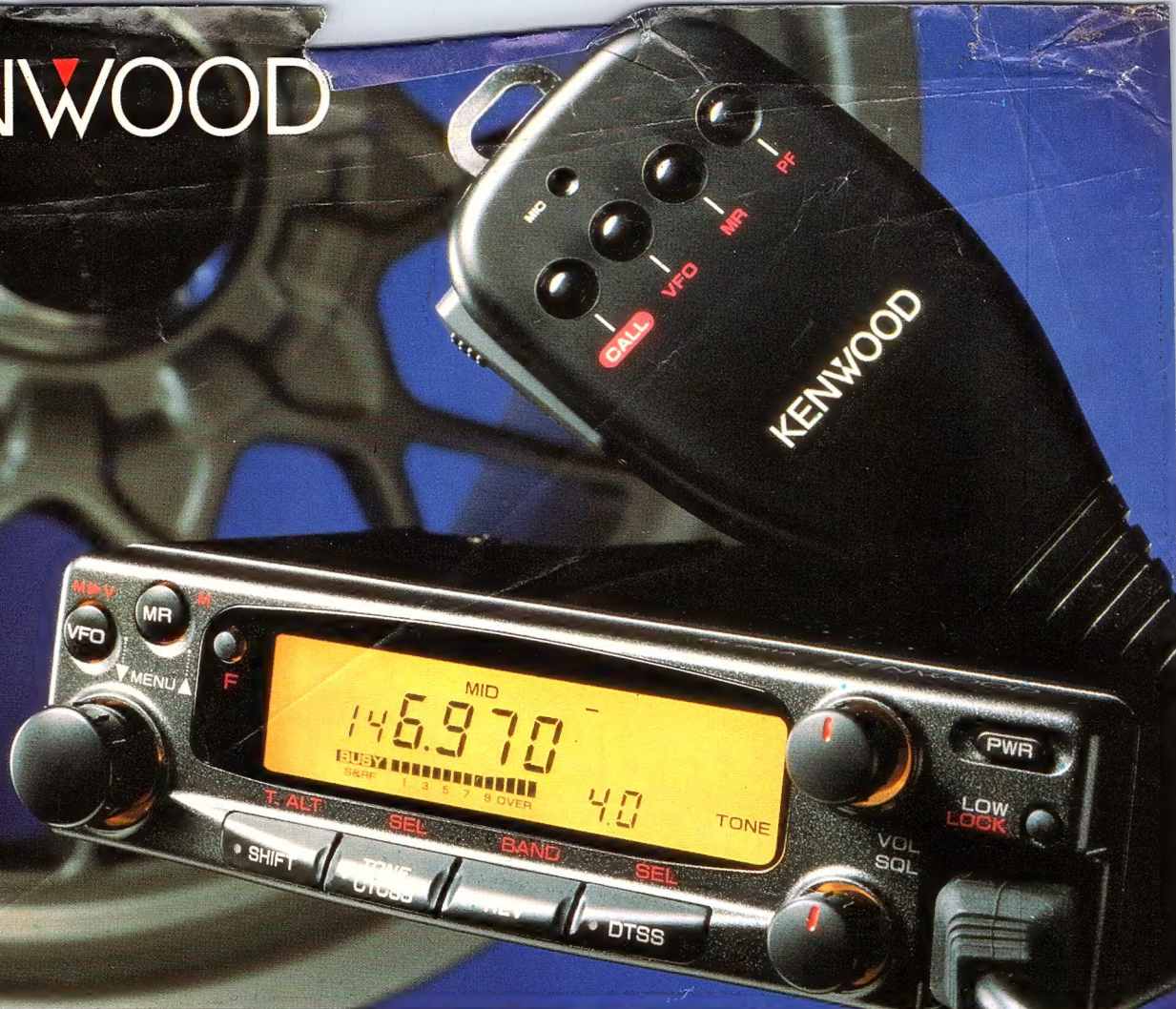
**Other reviews: AEA SWR-121 HF
Analyser; Two MFJ ATUs**

Plus: ● P29DX — Pom in PNG

● Newcomers — low cost amateur radio

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December Issue - Vol 17 No 12

On Sale: 30 November, 1994

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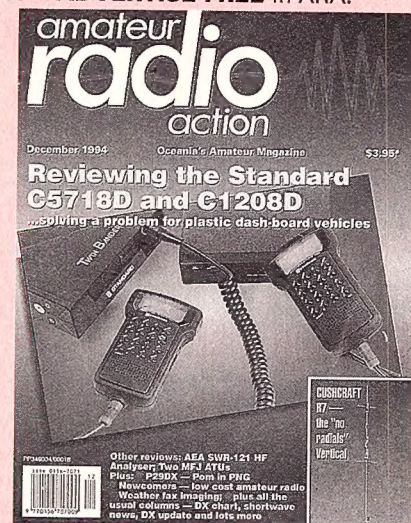
IN THE NEXT ISSUE (maybe): Next month we have a major, but relatively easy to build, 1200 Baud TNC project - all up cost about \$200. There are reviews on the excellent SG-230 antenna tuner, the 9600 Baud PK-96, ATN's brilliant new design tower, and Sony's ICF-SW100 receiver - plus, as always, a whole lot more...

DISCLAIMER: While all contributed material is read and checked as to its correctness, it is not possible to physically build and check every technical/project/modification article that appears in ARA. In consequence, we suggest that you use due care, be aware that most modifications will void a manufacturer's warranty, and that ARA accepts no responsibility for the small puff of black smoke which may be emitted from equipment at any time and for any reason.

Closing date for January issue editorial contributions, club news, etc. - 2 Dec

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WORLD NEWSDESK

SPECIAL V18 EVENT STATION

The Darwin Amateur Radio Club are activating a special event station (V18TRACY yet to be confirmed by the SMA) to commemorate the 20th "remembrance" of the devastating Cyclone Tracy which occurred on 24 December, 1974.

The frequencies will be;

	PHONE	CW
80m	3618	3530
40m	7065	7009
20m	14175	14009
15m	21176	21130

There will be a commemorative award for a confirmed contact.

ARRL REPLIES TO WRC-95 PREPARATORY COMMENTS

The ARRL has commented on an FCC Notice of Inquiry in preparation for the next International Telecommunication Union World Radio Conference, scheduled for November 1995. In its filing on Docket 94-31, the ARRL urges that any consideration of realignment of the 7 MHz band be held in abeyance until the World Radiocommunications Conference scheduled for 2001. This, to give fixed and mobile services time to relocate to higher frequencies. The ARRL had earlier suggested that the issue be considered in 1999 but has now moved that back two years. In the matter of the 2300 MHz band, the League notes that the 1994 Omnibus Budget Reconciliation Act carries a rider that 58

In the matter of the 2300 MHz band, the League notes that the 1994 Omnibus Budget Reconciliation Act carries a rider that protects amateurs. The league says this means that an

international allocation for the Mobile Satellite Service at 2300 to 2310 or 2390 to 2420 MHz should not be considered.

Finally, the League again argues for a future agenda item in the form of an International Amateur Radio Permit. They say that such an automatic reciprocal permit is already available among the countries of the European Conference of Postal and Telecommunications Administrations and the International Amateur Radio Union has been promoting such an agreement among its members in ITU Region 2.

NEW VERSION OF HAM LOG

It would seem that *Ham Log* author Robin Gandeia, VK2VN, is never satisfied with his product - even when, in the opinion of many, myself included, it is already the best such product on the market. The new version is 3.1 and it reflects the wishes and suggestions of a wide range of users throughout the world. While further improvements will always be made, Robin considers this latest version to be the definitive logging program for amateurs - world-wide.

In my position of editor, I get to see and use most logging programs at some time or other and from my first encounter with *Ham Log* (as a "sampler" downloaded from a bulletin board, I have believed it to be the best available - and that includes some quite expensive American programs.

The latest version includes additional log modes including G-Tor, Digi, SSTV and AM; an updates countries database which automatically maintains records of six different logs, defaults which can be set separately for different logs - and, candidly, far more than there is space for here.

ARA will review *Ham Log V3.1* in an upcoming issue - meantime, it would make an excellent Christmas present for yourself.

NEW ITU RADIOCOMMUNICATIONS DIRECTOR

The International Telecommunications Union, the ITU has elected Robert W. Jones, VE3CTM, to replace retiring Richard C. Kirby, W0LCT, as Director of its Radiocommunication Bureau. The 62 Robert W. Jones, VE3CTM, to replace retiring Richard C. Kirby, W0LCT, as Director of its Radiocommunication

Bureau. The announcement was made at the ITU Plenipotentiary Conference in Kyoto, Japan, on September 30th.

Jones is from Ottawa and is currently the Director General of Canada's Radio Regulatory Branch which regulates amateur and other radio services. His work with the ITU began in 1975 in preparation for the 1977 and 1979 World Administrative Radio Conferences. From 1981 to 1983 he was director of a project to automate ITU frequency records. He has since served and headed Canadian delegations to numerous ITU conferences and working groups.

VE3CTM holds Master of Applied Science and Master of Business Administration degrees, and attributes his professional interest in radio-communication to having become a licensed radio amateur as a teenager back in 1959.

EMI/EMC STANDARDS

A recent issue of The Australian Standard, the publication of Standards Australia, carried a feature article on "Cleaning up the spectrum", covering aspects of electromagnetic interference (EMI) and electromagnetic compatibility (EMC).

The article notes that in 1989, the European Community (EC) put in place an electromagnetic compatibility (EMC) regime. This has resulted in a common standard there that requires all electrical and electronic equipment sold in the European Community from 1 January 1996 onwards to meet minimum EMC requirements. Equipment meeting the requirements must bear a "ce" logo from that date. Australian companies expecting to export to Europe will be required to comply and show the logo, also. In 1992, Standards Australia and the Spectrum Management Agency signed an agreement under which Standards Australia will develop standards to support management of the spectrum in Australia in relation to EMI and EMC matters. That year, the prevailing international EMC standards were adopted here. Immunity standards for some specific products are under development in Australia, hearing aids in particular. This Australian initiative is a world first for, while other

....

WORLD NEWSDESK

standards exist for hearing aids, they have not been developed specifically for immunity.

Old standards, and some only introduced two or three years ago, are being revised and updated to keep pace with the rapid developments in electrical and electronics technology, says Standards Australia.

The 1992 agreement between the SMA and Standards Australia was reconfirmed recently with the signing of a Memorandum of Understanding (MoU) between the two organisations. Stewart Horwood, Standards Australia chief executive, and Christine Goode, spectrum manager of the SMA, signed the MoU. Under the agreement, Standards Australia will advise the SMA on which standards documents should become mandatory and the level of compliance to be required, reports the August issue of The Australian Standard. Christine Goode was appointed spectrum manager of the SMA in July this year after serving the past 12 months as acting spectrum manager.

REPEATER WAIT

Word is that several new repeaters are coming on the air in the United Kingdom. That is, they will eventually be on the air. The Radio Society of Great Britain reports that the latest batch of repeater applications have been forwarded to the United Kingdom's Radiocommunications Agency for processing. Included are three new Packet Radio repeaters, a

24 cm ATV repeater a two meter repeater and a change of frequency for another 24 cm ATV system.

That's the good part. Now here's the bad. The RSGB says that it anticipates the minimum time for clearance of the UHF repeaters will be at least six months or longer.

RESTRICTIONS LIFTED FOR UK HAMS

Amateurs in the United Kingdom are now able to run more power on segments of the 160 m and 6 m bands. In addition, restrictions on antennas and effective radiated power (ERP) on 6 m have been lifted. On 160 m, UK holders of the Class A license may now use 400 watts output between 1810 kHz and 1850 kHz as the power restriction on the 1810-1830 kHz segment has been lifted. However, the power limit for the 1850-2000 kHz segment is still 30 watts.

On 6 m, UK holders of the Class A and B licenses are now able to run 400 watts between 50 MHz and 51 MHz. Between 51 MHz and 52 MHz, they are still restricted to a power of 100 watts. Restrictions on ERP and antenna height which applied to the 50-52 MHz band have been removed. Maritime mobile operation on 6 m is now permitted in the UK, also.

Meanwhile, UK amateurs are now required to notify their local regulatory authority, the Radio Investigation Service (RIS), if they operate an unattended digital station. Operators have to notify their local RIS office on how

to close down their station in an emergency.

NEW PLAYER IN THE MARKETPLACE

It's always good to welcome new names onto the market-place and Kevin Cavanagh, VK4SP, is the most recent to make such a move.

After dabbling around the edges for some time Kevin has taken the plunge with his appointment as an AEA distributor. He is also handling the PacComm range (as an agent of Blamac) and is currently preparing a construction article on the JVFAX interface for us.

He tells us that he has most of the TNC products available ex-stock with a further shipment on the way.

PacComm have recently released a number of high speed products all bearing the "Sprint 2" model name. These have a variety of modem speeds available with 9600 baud being the slowest and we hope to review one in the near future.

Kevin is located at 222 Brisbane Valley Highway, Wanora, Queensland 4306 and can be contacted on (074) 643 954 or fax (074) 643 954.

ELDERLY REFUSAL

The FCC says no a petition that proposed exemptions from Morse code exams for people age 65 and older. The petition to change the rules was filed by Guy A. Matzinger, KB7PNQ. Matzinger is a 67-year-old Technician class licensee from Cheney, Washington. In his petition Matzinger

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argued that old age results in diminished faculties. He even equated people 65 and older with the severely disabled in terms of passing a CW exam.

To back up his claim, Matzinger introduced the results of a survey he conducted that said 63 percent of those he contacted supported an exemption for speeds above 5 WPM for anyone over age 65.

But in turning away Matzingers' request the FCC says that the survey was flawed. It notes that the study provided only a statistical age profile of those contacted but did not say how many people were actually surveyed.

The FCC says that similar petitions have been denied in the past. This is because the current Amateur Radio license structure is based on the desires of the amateur service community and on the thousands of comments it received on previous petitions.

The Commission also notes that its rules already provide for Morse code exemptions for candidates with certain recognized disabilities. It adds that the Matzinger petition got the usual public notice, but says it received no comments at all on this regulatory change request.

INTRUDER WATCHERS NEEDED

Would you like to help watch for, or monitor, intruders on our bands? Intruder watch reports have been successful in getting intruders removed.

For example, reports from volunteer observers of the Radio Society of Great Britain's Intruder Watch were instrumental in having an interfering harmonic from Radio Rusii, a shortwave broadcaster located near Moscow, removed from the 20 m band last year.

The Federal Intruder Watch Coordinator, Gordon Loveday VK4KAL, is seeking more volunteers to help monitor the HF bands. In particular, Divisional Intruder Watch Coordinators are needed in VK2 and VK3. But how do you recognise an intruder?

Well, Gordon has a very instructive tape on the subject, packed with real-life examples.

If you're interested in helping out, write to Gordon and enclose a blank C60 audio cassette.

Write to A G Loveday, Freepost No 4, Rubyvale QLD 4702.

FCC ABANDONS RECIPROCAL LICENSING DOCKET

The FCC has abandoned a proceeding aimed at using the all volunteer testing program to certify foreign hams for operation in the United States.

Private Radio Docket 92-167 proposed that Volunteer Examiners inspect credentials and administer brief examinations to visiting foreign amateurs as a basis for the granting of temporary FCC operating permits to hams from countries which do not have reciprocal operating agreements with the United States. In its comments on the FCC proposal, filed in 1992, the ARRL had said there were better ways to achieve the objective of the proceeding.

The League suggested that the US take the lead in establishing a universal worldwide license. It urged the FCC to abandon its proposal and consider alternative steps leading in that direction including US participation in a European CEPT license arrangement. Now, the FCC has decided not to amend its current rules regarding visiting hams. Instead, it has noted the suggestions in the comments for alternative means of licensing visiting foreign amateurs.

It says it will continue to explore other options for meeting this need and will work to ensure the reciprocal treatment of US amateurs overseas.

30M BAND FOR BRAZILIAN HAMS

Brazilian hams now have access to the 30 meter band. On September 1st 1994, the Brazilian Ministry of Communications has granted PY prefix Class A license holders permission to use 30-meters on a secondary basis.

According to P2WWV, this new band is shared with the fixed service. Amateurs are limited to non voice modes and to the frequencies from 10 dot 138 to 10 dot 150 MHz. Transmitter power output to 200 Watts.

For those of you not aware, the Class "A" is the highest class of ham radio operator license offered in Brazil

amateur radio action

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SMA's NEW POLICY ON HANDLING INTERFERENCE FROM TRANSMITTERS (or) READ IT AND WEEP

The Spectrum Management Agency (SMA) has changed the way in which it handles interference to radio and television reception arising from the operation of Amateur transmitters.

The new policy, which has been developed in consultation with representatives of the Amateur community, encourages Amateurs to become more involved in resolving interference arising from the operation of their station.

Interference involving Amateur transmitters mainly occurs because of two factors; a lack of radiofrequency immunity in the affected broadcasting receiver and the close proximity of the Amateur transmitter. Under earlier radiocommunications legislation, the SMA's approach to the handling of these interference problems resulted in the responsibility for remedying such problems generally falling to the owner of the affected device.

Under the Radiocommunications Act 1992, interference is defined to include interference to broadcast reception, whether resulting from an immunity problem in the affected receiver or from any emission of the transmitter.

The new approach stems from this definition and the basic legislative requirement for all transmitters not to cause substantial interference. As part of the SMA's wider approach to the management of interference, television and radio receiving equipment standards are planned to be upgraded to improve their resistance to interference.

In addition, in recognition of the roles that broadcasting reception and Amateur radio play in the community, the SMA has introduced a policy that provides a more balanced approach to the resolution of interference problems involving the operation of Amateur transmitters.

The policy places a joint onus on both the affected party and the transmitter operator to work together to resolve such problems.

The SMA has detailed measures that can be employed at the television or radio receiver and the transmitter installation to minimise interference.

For example, televisions should be fitted with an external antenna and it will often also be necessary for an appropriate filter to be fitted at the affected receiver.

Amateurs should use good engineering practices when installing their station and should always communicate using minimum transmitter power.

Almost all interference problems can be resolved without the intervention of the SMA; provided that both parties co-operate with each other and follow the

suggested measures.

Information on resolving transmitter interference has been produced in a brochure entitled *Better television and radio reception: Interference from CB and Amateur Transmitters*.

The brochure is in two parts.

The first part, which provides helpful information about resolving interference for both the person affected by interference and the transmitter operator, should be read in conjunction with the booklet *Better television and radio reception: Your self help guide*.

The second part of the brochure is the policy statement which outlines how the SMA handles unresolved interference.

This latter section will usually only apply to the very few cases where interference cannot be resolved by the parties concerned.

Both of these publications are available from any SMA office free of charge.

Members of the public may obtain further advice on interference matters, free of charge, by contacting any of the SMA's offices.

Where the SMA is called upon to provide a diagnosis of actual interference problems, a fee for service will apply.

Where it is necessary for the SMA to investigate instances of unresolved interference, the SMA will consider, on a case by case basis, a range of factors including what measures have been adopted by both parties to resolve the interference.

Additionally, the SMA will consider whether further steps could be taken by the parties concerned to resolve the problem.

In practice it may not be possible to resolve interference problems where appropriate measures, such as the use of an outside antenna for television receivers, have not been taken by the affected party.

Where reasonable measures have not been taken by an operator to overcome interference involving his or her transmitter or where substantial interference remains after all practicable measures have been taken, **it may be necessary to restrict the operation of the transmitter.**

The SMA's new interference policy also applies to television and radio interference involving the operation of CB transmitters.

The SMA's *Better television and radio reception: Interference from CB and Amateur Transmitters* brochure are available at no cost from any MA office - we strongly suggest that all amateurs make a point of reading them

I recently overheard two fairly new-to-the-hobby amateurs discussing (bemoaning) the high cost of amateur radio gear, specifically HF transceivers. They were discussing top brands, and top-of-the-line models. (Sorta like two teenagers with newly-earned learner's permits, grizzling about the prohibitive costs of Porsche 928s...)

"You really can't get much for under \$1,000," said they. "Horse-feathers!" sez I. Many new amateurs mistakenly assume that they have no choice but to begin with a tired old used QRP CW transceiver, a wire dipole antenna, and perhaps a used hand-held rig for VHF/UHF.

This may be the case if you're simply flat broke and have no way to raise cash for a decent station, but there are many possibilities if you allow your creativity, determination, and logic to prevail.

And you won't have to home-brew your entire station (unless you want to)! Over the past 10 years, there has been a virtual explosion in electronic technology. The technology of yesterday (tubes and linear VFOs) has been replaced with ultra-sophisticated, computerised, marvels of engineering and packaging technology (for which we pay most dearly).

But let's look seriously at some of those 'antiques' of the late '70s and early '80s (most of which are now in the \$400 to \$800 range).

Did they work? Most assuredly.

How well did they work? Many a DXCC and 5-band WAS earned, with untold millions of hours of enjoyment to boot!

Unfortunately, newcomers don't find as many ads for the antiques in today's amateur radio mags. All they see are the ads for the new, (multi) kilobuck transceivers from Japan Inc.

After reading some of the spec sheets on the new rigs, a newcomer to the hobby will probably think I'm off my rocker when I say most of the features found on the new HF rigs in the kilobuck range are *useless*! Just for an example, lets talk about digital VFOs and memories.

A digital VFO is, in actuality, a frequency synthesiser.

Synthesisers are characterised by extreme frequency stability (a very desirable trait), with drift in the order of 20 Hz or less per hour (based on thermal changes in the crystal time-base). But let's look at some of those antiques...

A NEWCOMER'S GUIDE TO AMATEUR RADIO EQUIPMENT OR WHY YOU NEED NOT GO BROKE TO BECOME AN AMATEUR

By John Deveson

They, too, can boast of frequency stability. Like 100 Hz or so per hour.

"But," you say, "that's *five times worse* than what a new rig can do!" And you're absolutely correct.

But the key question is: "Will you notice 100 Hz per hour drift?" Using a tight CW filter, yes, you would—after perhaps a *full hour* QSO. On SSB, you'd probably want to touch the frequency knob after about *two hours* of rag-chewing! Yes, those older rigs sure made amateur radio operating rough...

"But the new rig offers 100 memories, while some of the antiques don't even offer a digital display!" Yup, you're right again! But remember, unlike the VHF/UHF FM spectrum, HF is not channelised.

HF stations will be scattered randomly on the band—*never* will you find them exactly where you programmed your memory for yesterday!

Net operation? "Plus or Minus QRM" is often heard on many an HF net preamble.

Your HF memory will *never* get you exactly on the frequency of your favorite net. So you'll always be tuning up and down the band anyway.

Unless you plan to make heavy use of autostart RTTY, HF packet, or AMTOR, I doubt you'll ever need a memory on HF.

Keyboard entry of frequency? Perhaps good to get you into the desired band segment, but not much more.

Digital display? Impressive to look at, and perhaps nice to have.

But crystal calibrators (about \$20 to build, if your antique doesn't already have one built in) and mechanical dis-

plays have been the frequency reference for years — and yes, the new rigs' high-tech synthesisers have to be calibrated against WWV, just like the \$20 calibrator...

Solid state finals versus tubes

No doubt about it, tubes are getting more difficult to find.

But they *can* be found.

"Tubes are expensive!" Yes they are — but *you* can replace them. Did you ever try to get four matched RF-type transistors?

Ever changed a set mounted in a heat-sink buried within the bowels of a tightly-packed maze where even Japanese-sized fingers fear to go? More likely than not, the average amateur wouldn't even *attempt* to replace the finals in a solid state rig (*if* he or she could find a matched replacement set, that is!), while changing a tube presents little, if any, problem.

Tubes have other advantages, too. They're infinitely more forgiving when it comes to that 'ideal' 50 ohm resistive match we amateurs are always seeking, but seldom attain.

At 2:1 SWR, a tube will work just fine, whereas a newer rig will probably go into a limited 'foldback' to protect the transistors. How about *three* to one, then? Your tubes will still be perkin' along...

Transistor?

Forget it!

One disadvantage though: You will have to learn to peak the grid, and dip the plate. It's all a matter of hand/eye coordination. Watch the meter, twist the knob.

Yup, those amateurs of olden days

sure had it rough...What about a speech compressor, then? Some DXers swear by 'em. Most rag-chewers swear at 'em! If you *really* need one, they exist as after-market devices for the older rigs, not to mention the 'build your own' method.

Suffice to say, a lot of the features on the newer rigs amount to high-priced, useless frills.

What newcomers in quest of a good HF rig *really* need to do is seek out an experienced amateur who has knowledge about the older rigs.

Ask what kind of rig *they* use. Ask what they like or dislike about it. Most amateurs are delighted to show off their shack, and many will give you hands-on exposure to their setups.

I'd recommend any of the following, as they were the 'standard of performance' in that "classic" age of 10 or more years ago. Most can be found on hamfest tables or in ARA's Classifieds for around \$300 to \$800. Look at the golden oldies like Yaesu's FT-7 (or B) or FT-77 if you really need solid-state, or *real* rigs like the Yaesu FT-101B or (far better) Z, the FT-DX560 range or a two-piecer like the FL-DX400 transmitter and receiver pair or, of course, Kenwood's ever-green TS-520S or TS-930S if you have a bit more cash. Then there's the better American rigs like the Collins KWM-2A, Drake TR4-C or TR-7 transceivers or the T4C and R4C pair (a separate receiver and transmitter combination) — or, of course, the incomparable Collins S-Line, which is now more affordable than ever, if of course you can find one.

Again, these were the 'Cadillacs' of 10 or so years ago. They're all solid, proven performers, and parts are still fairly readily available although with the American made equipment you may just have to import them.

Be cautious, though — not *all* the rigs in this era were gems.

Until you're more knowledgeable about the ins and outs of specific models, stick to the old campaigners like Yaesu, Icom, Kenwood, Collins and

Drake. Got a little more to spend? Look at Icom's IC-745 (my current HF rig) or Kenwood's TS-830S or TS-430S. They should now be in the \$800 to \$1000 range, and are solid performers (even if they *are* transistorised!).

Just for fun, let me play devil's advocate. Let's assume that you, Joe New Ham, just *have* to have that kilobuck-plus special. It's a steep price to pay, no argument.

But the thing you have to keep in mind is that the cost of this hobby is mostly 'up-front' money. In the long run, amateur radio is *not* that expensive when you look at dollar cost versus hours of enjoyment.

Let's compare it to some other hobbies: Ten-pin bowling — pretty inexpensive, eh? After you buy your equipment (about \$250 or so for a good custom ball

What about golf? You pay green fees, and you're limited to daylight and (for all but the fanatics) fair weather. Not so with HF amateur radio...

Twenty-four hours a day, rain or shine, you can sit down and enjoy your investment, making new friends, learning about faraway places, and perhaps helping others in life-threatening situations.

Let's compare your amateur radio hobby. Say you spend even \$5,000 on a transceiver, antenna, tower, tuner, power supply, coaxial cables, rotator, and miscellaneous accessories for the shack. Let's say the setup lasts five years (conservatively) before you want to make any major changes.

Five grand works out to \$1,000 a year, or \$20 a week for unlimited hours of operating and providing a valued public service. Even if you

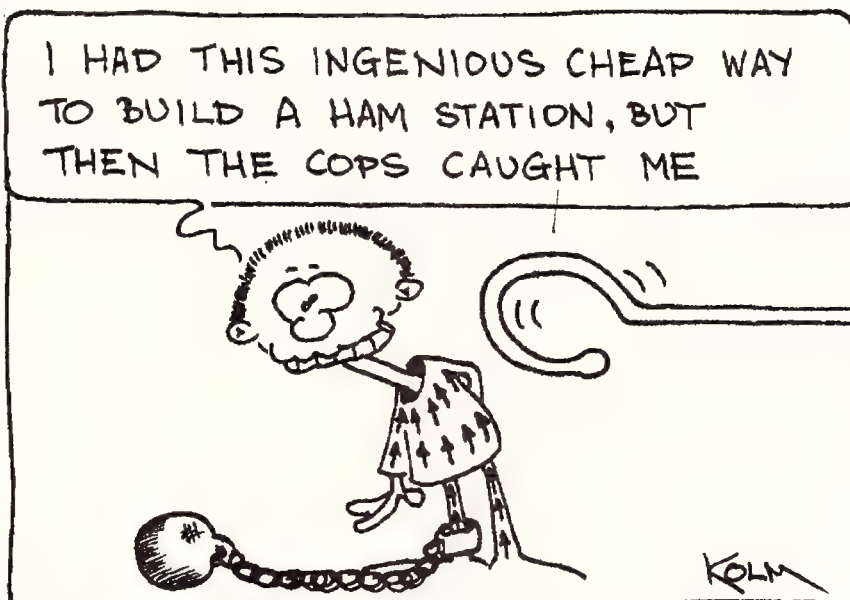
add more extras, like a good keyer, hand-held VHF radios, mobile gear, packet TNCs, a cheap computer, club dues, magazine subscriptions, reference books, tools, license upgrade CW tapes, and backup power generators if you're really desperate to spend a few more dollars, it's *still* a fairly inexpensive hobby over the long haul!

Not to mention the fact that you'll probably recoup 50 to 75 per cent (or even more) of your investment

if you decide to sell your equipment used at a later date. So, for a net outlay equivalent to maybe \$10-\$25 a week, you can be a 'complete amateur'. If you're still doubtful about the hobby, seek out an experienced amateur to consult and/or go shopping with, and go for one of the 'classics' of recent time.

Get on the air. It won't take you long to become hooked on HF operating. It's day and night compared to VHF repeater operation. Besides, you'll always be able to sell it at a hamfest if you ever lose interest.

But if you're convinced that amateur radio *is* for you, then go ahead and look at those kilobuck-plus specials, visit your friendly Credit Union if necessary, and GO FOR IT!



and those special shoes), you can look forward to dropping an additional \$10 or so every time you visit the lanes for a couple hours of fun.

A couple of times a week, over the course of a single year, you've already paid *more* than that new transceiver costs!

Do you enjoy going to the movies? Add this up: \$8-10 admission, another \$5 for refreshments — that's maybe \$13-15 per film — and if you go just once a week it works out to more than \$700 per year...

Now add a date and double it... about an hour and a half of entertainment each week for perhaps \$1,000! And don't forget the hassles of parking, waiting in line, and all that stuff.



MFJ 945D AND 949E ANTENNA TUNERS

So good you can tune up a salad on forty...

By Ken Reynolds VK7ZKR/3

If there ever was a Never-Ending-Story in amateur radio the continuing controversy of antenna matching and antenna tuners would have to take the prize.

Almost all compound antennas require some type of impedance conversion to accomplish efficient power transfer from the generator via a conducting medium to the load where the real mystery of EMP begins.

So, whatever your persuasion regarding the subject, this discussion is intended to evaluate two antenna tuner products in the wide range of MFJ amateur electronic products imported from the USA by **Daycom** (formerly Stewart Electronics) of Huntingdale in Victoria, not as a forum to debate the pros-and-cons of antenna matching.

Both tuners are shipped in strong, plain-looking cartons containing polystyrene foam mouldings which closely hug and protect the polythene-wrapped contents.

Basic operating manuals (which resemble a quickie lunchtime prod-

uct of the office copier) are provided with adequate instruction to users and a full page schematic detailing each tuner's componentry. The schematic page for the 'Versa' model was a patchy, *she'll-be-right-mate* copy which left a third of the drawing to the imagination.

Another demonstration of what sets apart the Eastern and Western cultures. The Japanese might not do good English language but they generally do pretty instruction manuals.

With the large quantity of products

sold world-wide by MFJ I can't believe the few cents extra to provide a few properly-printed pages would break the bank, however, product presentation would be lifted considerably.

Well, that's the only gripe out of the way, so, down to business.

There is a considerable size difference between the two models, the 945D being the smaller unit suggested for mobile use with an optional mounting bracket.

What really sets the two units apart is not their ability to match a wide range of



impedances across the whole amateur HF band, but what extra functions are included for your money in the larger 949E model. Both units use the same style 'T' matching network with two series air-spaced, 208pF variable capacitors with a multi-tapped, shunt inductor forming the upright element of the 'T'. The larger tuner uses an all air-spaced coil for the inductor while the mobile unit uses a similar assembly for the tapped portion of the coil, and by adding a lumped inductance wound on a composition toroid core for the untapped cool end of the coil, a space saving of about 35 per cent is achieved without any apparent detriment to the tuning or power handling capacity of the tuner.

There are 11 coil tapings descending in inductance value from 'A' to 'K' which are selected through a rotary switch mounted through the front panel. The twelfth position, 'L', skips a considerable length of inductance and is connected directly to the cold earthy end of the coil. As an aid to tuning, MFJ incorporates cross-needle meters in all of its antenna tuners so that forward and reflected power can be read simultaneously on individual scales, while a third scale provides a real-time evaluation of the SWR which is read at the intersection where the two meter needles cross.

No calibrate adjustment is provided or needed with this system.

Forward power ranges are 30 watts and 300 watts, with the larger unit offering a choice of average or peak power calibration.

Reflected power scales are calibrated for 6 watts and 60 watts respectively and the SWR possibilities are plotted out in red on a third slightly non-linear scale.

Both units have lamps built into the meter housings to illuminate the scales but separate 12 volt DC power has to be supplied via a rear panel-mounted socket.

The Versa model includes a 300 watt carbon composition, 50 ohm dummy load resistor to aid with tx tune-ups and unobtrusive testing.

A 4:1 balun allows connection to a pair of balanced wire feed terminals while a third terminal post can be used for a whip, random wire or whatever takes your fancy at the time.

This unit also provides a second switched SO-239 outlet. All four outputs and dummy-load are switched from the front panel with the anten-

na positions each having an alternate *bypass* notch which connects your rig directly to the feedline.

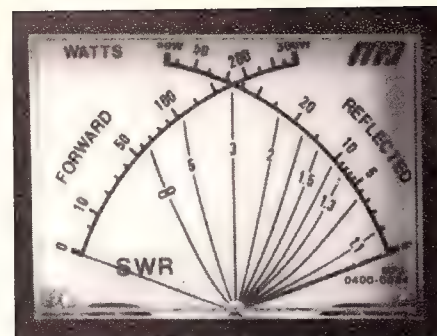
Apart from the nicely-printed aluminium control panels, the internal construction gives the appearance of neatly-executed 'home-brew' equipment which has been built with considerable care. It doesn't have that flair for æsthetics of the Japanese gear, but the construction is sound and effective, and certainly detracts nothing from the excellent performance of either unit.

How well do they work?

Provided the user has basic grasp of manual antenna tuner operation — which one can glean from the manual — both MFJ products can, with relative ease, and within the nominated frequency range, match your 50 ohm transmitter output impedance to just about anything that will conduct and/or absorb RF energy.

We tried a range of wire antennas and unloaded vertical monopole whips as short as two metres long which, with only the odd exception, we were able to tune right across the HF band to an indicated zero or almost zero state on the reflected power scales of both tuners.

We tuned successfully the house rain gutter, an aluminium window frame, both of which performed quite well within limits. It was more a matter of finding something conductive which *couldn't* be



"Crossed needle" type indicator makes reading easy.

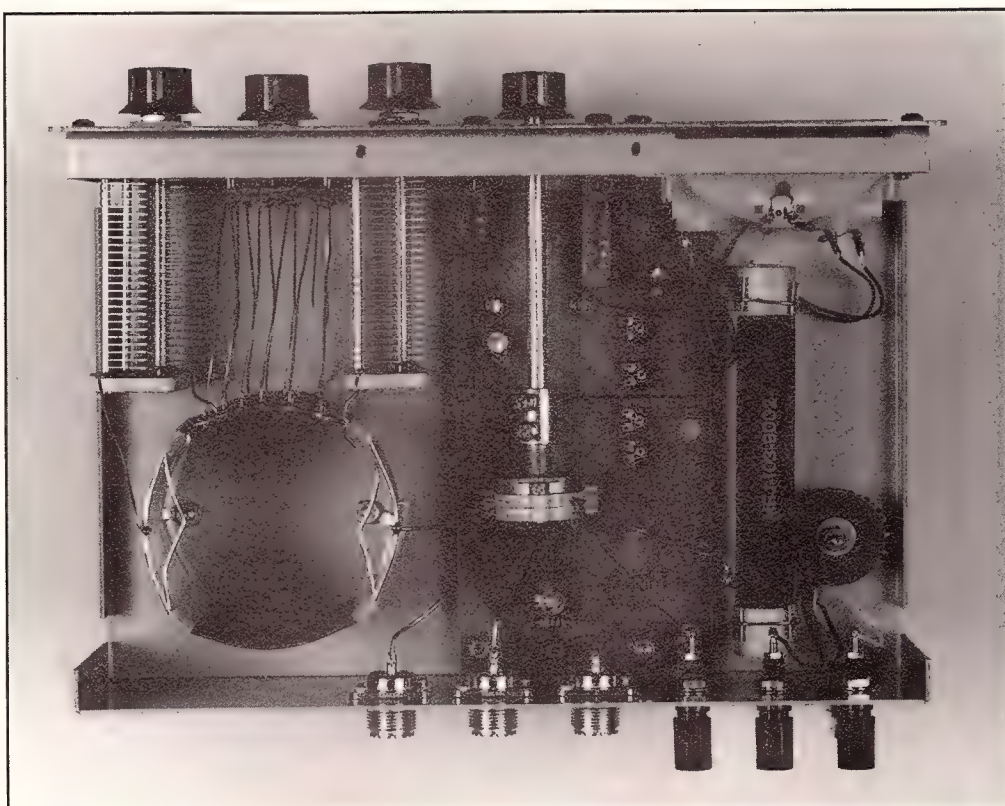
tuned, and, crossing the line from the sublime to the ridiculous I whipped a fresh lettuce out of the fridge and got a dead-needle match over a wide range of frequencies.

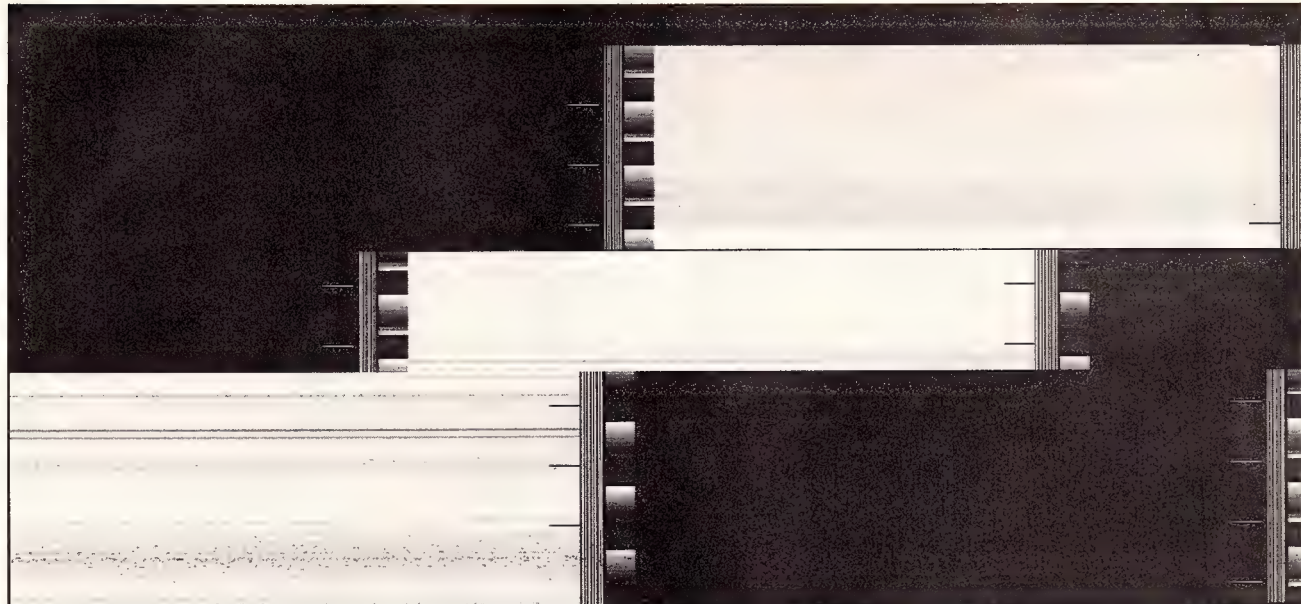
A lettuce absorbs about 30 watts of RF before visual signs of stress begin to appear in the form of steam and a distinct crackling sound is heard. At higher power levels the SWR becomes quite unstable. Hmmm?

In all seriousness, it was surprising to find that a lettuce located about three metres above sea level when properly matched to a receiver can deliver quite useful signal levels!

What more could you ask from a manual antenna tuner?

Review ATUs supplied by Daycom Communications.





On September 14 I received a phone call from Phil Webb up in Queensland asking if I had received the first pass of NOAA 11 that afternoon as it had 'chucked a whammy'. Being out I had missed it and with some trepidation waited for the second pass.

NOAA 11 "Chucks a Whammy"

Phil was not wrong, as when it came over the horizon it was evident that something had gone radically wrong. It was still transmitting both the visible light and infra-red frames, but there were no pictures. Every minute or so the sync would give a hiccup and the position of the frames would change. I have included a picture above) received from NOAA 11 on the 15th showing what I mean.

Phil later confirmed that it was not transmitting its high-resolution pictures either. Nobody seems to know why it has developed this fault but there is some speculation that it may have been hit by one of the thousands of pieces of space junk in orbit up there. This has been a bit of a blow to Australian satellite watchers as it was the only one of the NOAA series that was timed to give good afternoon visible light pictures, especially during the summer. NOAA 9, which is past its retirement age, is also experiencing trouble, and maybe it won't be long until it too disappears from our screens.

NOAA J, which will become NOAA 14 if its launch is success-

ful, is due to go up on December 12, and it can only be hoped that it may perform longer than its predecessor, NOAA 13. I hope that all goes well as they are fast running out of weather satellites.

At the time of writing — late September — the Russian Meteor satellite 3/5 is giving excellent afternoon pictures, and the smoke from the bushfires in NSW and Queensland can clearly be seen.

I had hoped to get some pictures of the erupting volcanoes around Rabaul, but unfortunately I am just a little bit too far south and although I can get all of New Guinea I couldn't get New Britain. I would be interested to know if anyone got any good pictures.

To prove there is life on the other side of the Nullarbor I received a letter from Steve Warriner in VK6 land to say that there is quite an active group of satellite watchers over there and that he is engaged in manufacturing hardware for weathersat reception.

He can offer kits for AM/FM decoders, satellite receivers and pre-amps.

Steve is also working on a couple of interesting projects which will be mentioned in a later article should they come to fruition.

He is also an official distributor for

JVFAX. Full details and prices of what is available can be obtained from Steve Warriner, Technocom, 187 McLarty Road, Hallshead, Mandurah, WA 6210

Robin Gandevia, VK2VN in Sydney wrote to say that he receives good pictures using the American Vanguard 137 MHz synthesised receiver and swears by the Lindenblad antenna he constructed. (I must build one someday!) I have included a couple of Robin's pictures with this month's article.

Robin is also the author of the popular 'Ham Log' program.

I also had an interesting letter from Roger Woodward, VK2DNX, who receives GMS 4 transmissions using a AWA RL1500C 60-channel link receiver modified to 1.6 GHz and a 2M dish antenna originally used for 900 MHz.

He modified the dish by covering the aluminium ribs with aluminium flyscreen mesh and 300 self-tapping screws and a coffee tin as a feedhorn.

The pictures Roger sent me prove that it all works okay. He hopes to get into orbiters soon using a modified Philips FM828 receiver.

Before I get into the follow-up to my last article regarding the care and feeding of dishes I thought I would discuss the problems of 'signal sucking'. TV

**Image on opposite page shows
scrambled pictures from NOAA 11
after failure.**

reception in our area is, to say the least, bad and, on some days, impossible, especially in the village.

Not long after erecting two of my satellite dishes I observed that TV reception was particularly bad due to maintenance at the transmitter — but I was amazed to find that I was being blamed for the poor reception in the village.

Evidently someone who 'knew about these things' told everybody that the poor reception was due to my dishes 'sucking' the TV signals out of the air before they got to the village!! So be warned, if you put up a dish you might be accused of being a signal sucker.

Incidentally the same person said that my computers were interfering with his TV, which I thought was pretty good, especially as he lives 15 km away. Ho hum...

Feeding your dish...

The feeding of dishes is comparatively easy and cheap. It is possible to obtain dishfeeds from either America or the UK, but you are looking at \$2-300 to buy whereas you can make one yourself for under \$10.

I use two home-brew types, the 'Tin Can' and the 'Helix', and both provide noise-free signals from 1.3 and 1.6 metre prime focus dishes. I still haven't had much success with the 90cm offset dish.

Fig 1 shows a simple tin can feed-horn for 1.7GHz. Any tin will do providing that it is approximately the dimensions shown.

Here's how to make yours:

- First cut off the rim at the lid end of the can. This is also the best time to paint the tin with an undercoat and a couple of top coats to prevent rust.
- Next obtain a female panel-mount 'N' connector.

For the probe cut a 44mm length of 1.5mm brass rod as recommended by Peter Williamson or 1mm copper wire as used by me, insert it into the rear center conductor of the 'N' connector, and solder in place.

- Drill a hole in the side of the tin so that the probe will be 40mm from the end of the tin. Insert the probe and screw the 'N' connector to the outside of the tin. Make sure that there is good contact between the connector base and the tin.
- There are several ways of mounting the horn to the support arms of the dish. I screw the base of the tin to a 17cm square piece of sheet aluminium and attach the support arms to that.

The satellite is positioned at the lati-

tude of 0° and the longitude of 140° East. To obtain the az/el for your location feed the Kep elements for GMS4 into a satellite tracking program, then all will be revealed. For those who have not got a tracking program they are welcome to send me their latitude and longitude and an SAE and I will give them the az/el data for their location.

Fig 2 shows a design for using a helix for the feed, and this is perhaps simpler than the tin can to construct:

- I used a 17cm square piece of sheet aluminium and drilled three holes to bolt to the support arms.
- I then drilled a hole in the center and attached a female 'N' connector to the sheet. I then constructed a three-turn helix out of 1mm hard-drawn copper wire with the turns diameter being 5cm and the spacing between the turns being 1cm.
- This was then soldered to the rear center conductor of the 'N' connector... and it provides noise-free signals from my dishes.

Whilst experimenting for the best size of helix I used a brass sleeve taken from an ordinary 240 VAC terminal strip. This sleeve can be screwed onto the center conductor of the 'N' connector, and helix of various sizes can be screwed into the other end until the right size and dimension of the helix can be determined. Once you receive noise-free signals the sleeve can be removed and the helix soldered into place.

Review

One thing that I must painfully admit

TIN CAN FEED HORN FOR 1.7 GHz

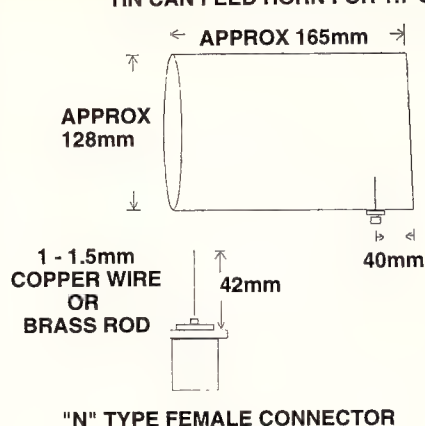


Figure 1

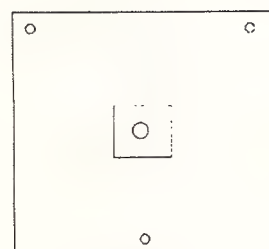
is that I am not a photographer, even with an idiot-proof automatic camera. Hence my attempts to get a decent picture of Phil Webb's APT satellite receiver were doomed to failure, so you will have to rely on my descriptive talents to get the picture, so to speak. Along with the receiver Phil had also included one of his masthead amplifiers which worked a treat.

The satellite receiver is contained in a strong grey plastic housing measuring 20 x 15 x 6mm and is attractive to look at. The front panel is metal and is set out in the following manner, from left to right: first up is a huge 6.5 x 5.5cm analogue signal strength meter which I particularly liked due to my aging eyesight.

It also gives very good visual indication on how much hash is coming from the computer and/or monitor.

The meter is not calibrated in any special units and may need to be adjusted according to whether you are using a pre-

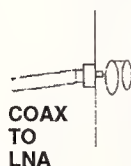
Figure 2



3 HOLES FOR SUPPORT ARMS

FEMALE "N" TYPE CONNECTOR

SHEET ALUMINIUM 17cm SQUARE



THREE TURNS
1mm COPPER WIRE
- DIAMETER 5cm
- SPACING 1 cm

HELIX SET AT FOCAL POINT

amp or not. Internally there are two trimpots allowing you to adjust the gain and set zero.

Next to the meter is the volume control which allows you to adjust the audio output from the receiver's internal speaker which lets you monitor the incoming signal. Using this control does not affect the signal level to the decoder board.

Next in line is the channel select knob.

The set is fitted with six crystal-controlled channels for the following frequencies: 137.300, 137.400, 137.500, 137.620, 137.800 and 137.85 MHz, which are the normal channels used by the weather spacecraft.

Using this knob, each channel can be selected individually, or it can be turned to the scan function where each channel is scanned in turn and locks on to a specific channel when a signal is detected.

The last control on the front panel is the mute on/off switch, handy if you want to monitor a weak signal.

The scan function performs whether this switch is on or off.

Above these controls are a row of seven LEDs, six red ones to identify which of the six available

channels is active, and one green which is lit when the set is using the scan function.

The rear panel consists of the following, again left to right: first is a power input socket.

As there is no plug pack supplied with the receiver you will require a DC voltage of between 11.5 and 15 volts at 300 to 500 milliamps.

The socket is wired for centre pin positive.

As a precaution a reverse polarity protection diode is fitted.

Next is the antenna socket. The review receiver was fitted with a PAL push-in type TV antenna socket which I personally did not like.

I would have preferred to see a UHF or N-type socket. In the instructions it stated that if you wanted another type of socket fitted to have a radio technician fit one for you.

I had a word to Phil about this and he has agreed to fit an alternative type of socket if required by the customer so long as it is specified at the time of order.

Due to the sensitivity of the receiver Phil does not recommend the use of a masthead amplifier providing that the

cable run is restricted to about 10 metres.

However, if you are using an amplifier the set can be ordered with an output of 12 VDC from the center pin of the antenna socket.

Sets modified this way will be labelled as such and care should be taken that they are not connected to a closed loop type antenna without the amplifier in line.

The signal output socket delivers a fixed signal level to the decoder and is not affected by the setting of the volume knob on the front panel.

The fixed level signal can be adjusted to suit your decoder by adjusting an internal trimpot.

The set is fitted with an 'unattended receiving' switch. When selected, it prevents any signal reaching the signal output line other than when a satellite's control tone of 2400 Hz has been detected and the squelch has opened.

This allows you to leave the receiver unattended with the knowledge that it will only receive a fair dinkum satellite signal and will not be triggered by other spurious noise.

The receiver Phil sent me for review had a another socket fitted.

Labelled Doppler Output, it rather intrigued me.

The voltage at the Doppler output jack can be measured with a digital voltmeter and the results graphed to show the effects of the Doppler shift on transmissions from the various satellites.

This feature is not fitted as standard and must be specifically requested.

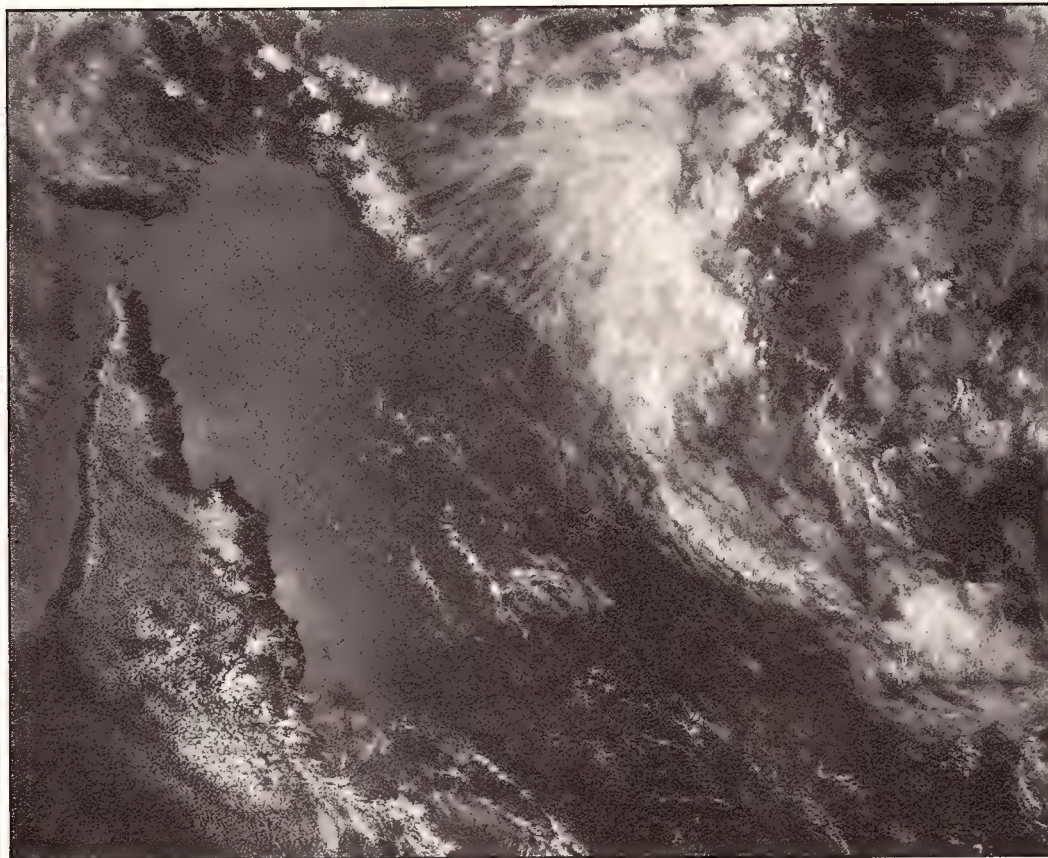
If fitted, a calibration sheet for the Doppler data pertaining to the set is supplied.

I regarded this as an interesting feature and could be used as an educational tool by schools.

There is also another optional feature, this time not fitted to the set I was using, which is an output of a crystal-derived 2400 Hz signal for use in the playback of received satellite signals from a stereo tape recorder.

However, this feature is not required for

**Cape York - submitted by
R. Gandevia, VK2VN.**



some decoders such as Tom Moffat's Listening Post II, where mono recorded signals can be decoded without the need of an external tone.

Having checked the front, back and sides of the receiver there was one control I could not find — the ON/OFF switch.

This turned out to be not surprising as there wasn't one.

This might not be a big problem if you could easily switch off the power at the mains socket but in my case where I run my receivers from a common power source it was a b..... nuisance, as I had to unplug the power from the back of the receiver every time I wanted to switch it off.

Phil, who does not object to constructive criticism, agreed that it could be a problem in some cases and in future receivers an on/off switch will be incorporated. Good on you, Phil.

Having plugged in the receiver to the power I eagerly awaited the arrival of NOAA 11 which was still functional at that time.

As it appeared over the horizon the squelch broke and a clear strong signal was received.

The European software and decoder I was using is very intolerant of any sig-

nals that are not perfect and will not lock on to signals provided by a modified scanner until the satellite is fairly high in the sky.

Not so with SciSat's receiver — the signal was locked in the moment the squelch broke and remained so until the satellite fell over the edge of the earth. The sensitivity and stability of the receiver was as good as I could wish for.

Readers may think that I have a fetish about correctly-received grey scales, and they'd be absolutely right: I have.

If you only want the satellite pictures to look at the clouds and land masses your grey scales need not be completely accurate but if you want to study such things as temperatures it has got to be spot on or you will come up with some ridiculous readings.

Looking at the images I had received from NOAA 11 the grey scale bars appeared clear and well-defined.

I then selected the IR picture and set the software to the read temperature mode.

This particular software shows your position on orbiting satellite pictures so I moved the mouse arrow to our location, clicked the button and the temperature of 17°C was displayed.

I then checked our outside tempera-

ture which showed 16.3°C which proved that the grey scale was correct.

I then tried the receiver out on the Russian Meteor 3/5 and obtained equally pleasing results. I have included a picture showing the definition of the grey scale bars received from 3/5. The smoke that can be seen at the bottom middle of the picture is from the bushfires that were burning in NSW and Queensland in late September.

I found the receiver to be exceptionally stable and is equal to, if not better than, anything I have tested from abroad.

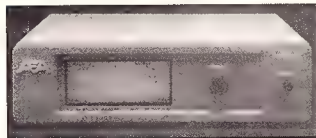
At around \$400 it offers good value to anyone requiring a dedicated orbiting satellite receiver. Full details can be obtained from Phil Webb, SciSat Products, PO Box 222, Esk, Qld 4312. Telephone (074) 24 1761.

I would be interested to hear from any reader who is engaged in the reception of HRPT from the NOAA satellites as this is an area I would like to discuss in a future article.

By the time this article is published we shall be entering the cyclone season, with spectacular cloud formations and, the sun being high in the sky, excellent pictures to be obtained from the orbiting satellites.



Data Controllers Put You in Control



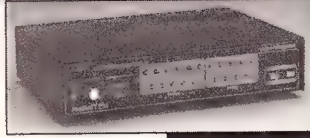
PK-900

- Dual simultaneous ports.
- Automatic signal identification.
- 9600 bps modem option available.
- 8-pole Chebyshev bandpass filter.
- Dual-port Gateway: Packet to AMTOR, Packet to PACTOR, and Packet to Packet.
- Twenty software selectable modems.
- 17K Packet, PACTOR, and AMTOR MailDrop.
- 16-level gray scale fax with opt. software.
- Same modes as the PK-232MBX.
- Full PACTOR Memory ARQ.

- DSP-1232 has two switchable ports.
- DSP-2232 has two simultaneous ports.
- Same modes as the PK-232MBX.
- Includes modems for satellite use.

- Automatic signal identification.
- 17K Packet, PACTOR, and AMTOR MailDrop.
- DSP-2232 has dual-port Gateway: Packet to AMTOR, Packet to PACTOR, & Packet to Packet.
- DSP-2232 features front panel LCD.
- Up/Down Doppler shift for PSK modems.
- 9600 bps modem included.

**DSP-2232
DSP-1232**



PK-232 MBX

- PK-232MBX
- Designed for multi-mode operation.
- Internal 1200 bps VHF modem.
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- 18K Packet, PACTOR, and AMTOR MailDrop.
- 2400 bps modem option.
- 8-pole Chebyshev bandpass filter.
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- PK-96 is a bps packet-only controller with 9600 bps K9NG and G3RUH compatible direct frequency modulation and 1200 bps VHF packet.
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PK-12



PK-96

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I have an admission to make to you: I don't like towers. Oh sure, they're functional from a radio point of view, but if you look at them — I mean *really* look at them! — they're ugly mothers of things. So you stick one of these power pylons in your back yard, then whack a thumping great TV antenna on steroids on top of the ugly scaffold — and you wonder why the neighbors want to know if you're on the KGB payroll. They never look at you quite the same again.

Most amateurs without towers blame either the spouse or the local council for their absence. If I really wanted one I know my XYL would grizzle a bit — quite a lot, actually! — but I might just about get away with it.

But I prefer not to have a tower here; my new house is looking a bit stark while we wait for the trees to grow and, frankly, I'd rather not announce things too loudly to the folks on either side until I can camouflage them a bit better.

On top of that, I'm not exactly an HF DX hound. In fact, I spent so many years licensed for VHF/UHF only that I still feel that using HF is a journey into the unknown. In more than 20 years as a licensed amateur I have worked a grand total of about 20 countries, and I've actually been very happy with that haul.

By choice, I do a lot of local operating, choosing to talk mainly to my friends on out-of-the-way simplex channels.

But I entered amateur radio by listening on a converted broadcast receiver to the old-timers chatting on 160 metres AM. I had always wanted to get a real AM transmitter and say hello to those hardy pioneers still using AM on 160 and 80 metres, and bit by bit I found I didn't really mind the HF bands after all. I didn't venture far from home, though, and chose to talk almost exclusively to amateurs within VK.

These days I listen a lot, but I rarely talk to anyone on HF unless I'm operating mobile. Our new house wasn't a yet month old when I decided to take a walk around the boundary with a long reel of wire, jamming it into the top of the suburban paling fence until I felt I'd run out enough wire.

'Enough', I figured after a few minutes, was about 300 feet — and all of it not more than five feet off the ground, and none of it in the clear! Suffice to say it was okay on 160 metres, passable on 80 metres... and truly awful on higher bands, where I really needn't have bothered. The damned thing was worse than

useless. Its sole saving grace was that I chose the astounding SGC SG-230 'Smartuner' to turn this useless lump of wire into an antenna on which I actually worked into northern VK4 and ZL on 160 metres one night.

But I now wanted to give Jim and Kirsti a fright on 20 metres one Sunday afternoon (I did too!) so it was time to consider a more ugly antenna.

What I needed was a simple, effective 'do-all' for HF which wouldn't upset our sensitive neighbors, threaten my marriage or alienate the council. I wanted to be able to hear everything without having to work out where to point a beam, and I wanted *all* the bands. Oh, and I wanted it to be something even I could afford.

Enter another vertical HF whip.

This time, as you may have cleverly guessed from the title, I chose a Cushcraft antenna, and I couldn't be more pleased with it if I tried. It was a funny choice, really. I wanted 160 and 80 metres, yet I chose an antenna which claims to work only on frequencies 40 metres and above. And sure, there are times when I wish for another 6dB of gain or a really big amplifier, but in several months of use at my QTH, the R7 has been a very satisfactory performer indeed. Let's take a closer look...

The assembly...

I've assembled quite a few vertical HF antennas since I finally worked out how to pound out a few CW characters.

This is my fourth base-style vertical, and it's the best by a country mile. Its assembly routine was also the easiest by far.

Until now, each time I've built a vertical, I've followed the assembly instructions to the letter, then spent *twice* as long (as the couple or more hours on my knees with a screwdriver) trying to actually make it *tune* somewhere.

The R7 took far less time to assemble than the others, as its main sections were put together in the factory — and it

tuned *exactly* where it was supposed to. No sweat, no drama, and no fiddly adjustments. I also found the manual very easy to follow, and the pieces had soon been organised into the groups I'd need to make my antenna.

This antenna is made in the USA, where many operators head for the 75 metre band, which is up near 4 MHz.

There are a few other differences between the US bands and ours, too. But full tuning instructions were supplied for each band, which allowed for the individual choice of the SSB or CW segments of each band, or US or Australian segments, for that matter.

Also, there's nothing to stop you from selecting a point half-way between any two points should you so desire. You can even assemble it to favor the main international shortwave broadcast bands.

The stainless steel nuts, bolts and washers were sealed in a number of plastic bags, with all the pieces of aluminium and a large black plastic box carefully wrapped in soft paper. Another bonus was that no section was longer than about four feet in the old money, so the box it all came inside was also very compact and was easily stowed in the car for the trip home.

The pre-assembled sections are the seven band units, and these individually-tuned and carefully protected parts all bolt together in ascending frequency order at the top part of the antenna. There's about three metres of aluminium tube from the bottom of the antenna to the first of the assembled sections, with a very simple and logical arrangement to work out which bit goes where. (In other words, 30 follows 40, and 20 follows 30m, and so on!) I needed to mount some of the sections at right angles to the section underneath, simply to avoid having one section touching the one below.

The base of the antenna has several short steel radials coming from a black box which attaches to the side of the

Cushcraft R7 vertical

Lots of bands and easy to assemble...

By Chris Edmondson, VK3CE

antenna. The box contains a number of coils, and has a standard SO-239 female antenna connector at its base. The connector points downwards, which is very sensible from a water protection point of view. Everything went together perfectly and, as the antenna resonates as a half-wave on each band, no ground radials were needed before I could put it into service. The whole assembly took me little more than 90 minutes, although I'm told it's been done in around 30 minutes by DXpeditioners.

Neil Duncan climbed aloft to help me bolt the newly-assembled antenna to the stubby mast arrangement on the side of my house, then (before the obligatory 807s!) we hooked up an MFJ Antenna Analyser and looked in wonder as we saw lovely strong dips in all the right places. We also saw an SWR of around 1.5:1 on most of 80, but it was just over 3:1 on 160 metres, and six metres was a dead loss.

I worked a VE-something in the 80 metre DX window the very first night (that was several months ago now — in April, when the band was working quite a bit better!), and managed a good report into VK4 on 160 metres the next night although, as you might expect, the long wire won a better report.

But what about the bands it was designed for? Did it work? Did it ever!

And I've since doubled or trebled my country total simply by very occasionally replying to CQ calls from prefixes I didn't immediately recognise.

As a guide, it's now late evening at the end of September, and I'm listening — again on 80 metres, where the antenna isn't supposed to be able to work — to a group of VK5 and VK6 Novices rolling in at well over S9+20.

The automatic antenna tuner in my rig is able to iron out most of the antenna's lumps, but here's how it looks with the tuner out of circuit: on **80 metres**, its best resonance is right at the bottom

end. At 3505kHz the SWR of my particular antenna is 1.2:1. This figure has risen to 1.6:1 by 3600kHz, and it reaches 2:1 at 3630kHz.

But all that is a bonus. Official coverage begins at **40 metres**, and on this band I get a really good dip right on 7075kHz, where the SWR is just under 1.2:1. Moving either way sees the SWR increase proportionally, and both 7040 and 7120kHz see 1.5:1.

It's up to 2.5:1 at both 7MHz exactly and at 7160kHz. I selected 7075kHz as my center frequency when assembling the antenna, and that's *exactly* where it resonates best.

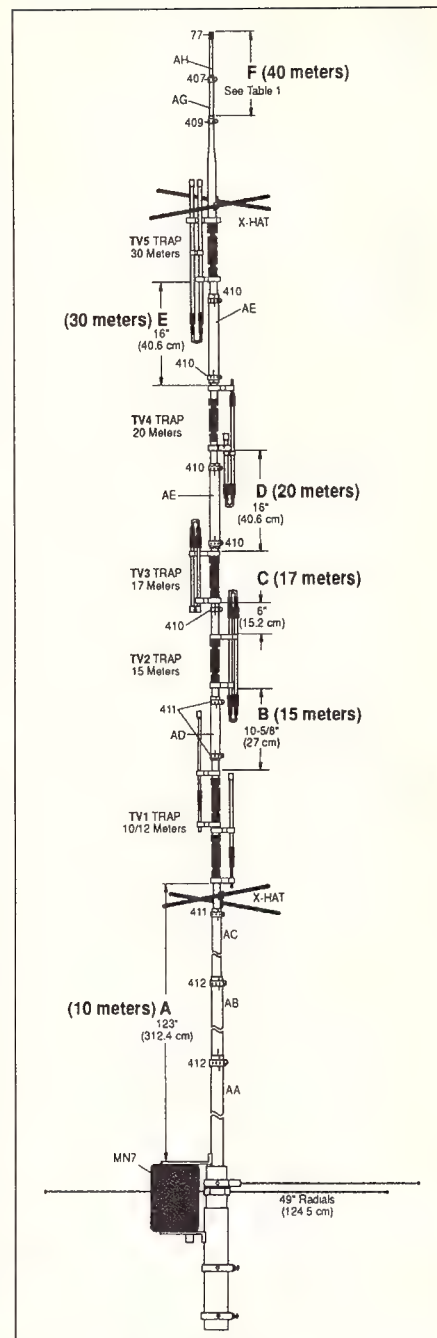
The **20 metre** band has shown me the limitations of relying exclusively on a vertical antenna, as many stations I can hear quite well simply do not know I'm trying to talk to them!

I could blame some of this on my unusually quiet location, but it may well be that an omnidirectional antenna simply cannot 'cut the mustard' when compared with a big station beam.

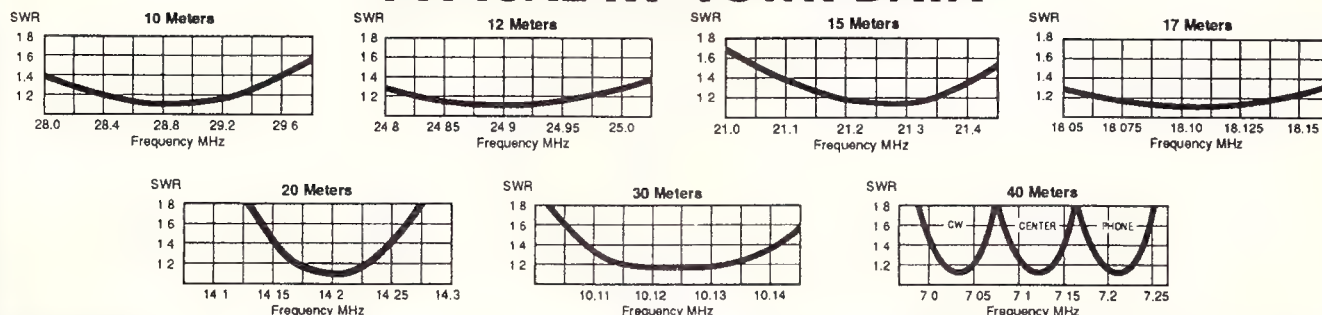
Even so, the R7 tunes well here, too. I aimed for 14,150kHz when assembling the antenna, but it tuned slightly under this point, at 14,140kHz. Another good result, though, with no readable SWR at that point, rising to 1.5:1 at the lower band edge and also at 14,250 kHz. It's reached 3:1 when the knob hits 14,350kHz, but I rarely venture that high.

Its performance on **15 metres** missed the mark by a little bit, with its performance on this band actually better the lower I tune. At 21,005kHz, for example, there is no discernible SWR. 21,300kHz, on the other hand, presents 1.5:1, but you need to wind it all the way to 21,350kHz before you'll run into strife with a 3:1 SWR. I could, of course, drop the antenna to make further adjustments (shorten the 15 metre section) but I've

....



TYPICAL R7 VSWR DATA



EQUIPMENT EVALUATION....

had occasion to use this band perhaps three times...

The **10 metre** band must give antenna designers grey hairs. It's such a big slice of spectrum to tune! I tuned my Cushcraft R7 for the FM portion of the band, so imagine my surprise and pleasure to discover an SWR of less than 1.3:1 across the entire band. Now we're talking! I caught a couple of JAs on 29.6MHz FM the first weekend I listened, but I can't say I've heard any really exotic 10 metre DX... blame the conditions and my infrequent tuning this high.

But the R7 covers another three bands.

The interesting **30 metre** band sees an SWR of around 1.2:1 at 12.125MHz — bang in the middle of our 50kHz-wide allocation. I've heard — and worked — quite a bit of interesting packet, Pactor and AMTOR traffic in this band, but I've caught only two or three voice stations here. The tune is quite sharp, befitting a small band. I can tune the entire band, but I don't think it would want to be much bigger...

The **17 metre** band covers 100kHz from 18.068 to 18.168MHz.

To be honest, I wasn't sure where to tune this one, so I picked 18.100MHz when assembling the R7. Once in the air I found the best SWR at 18.090MHz, so once again the assembly charts were very accurate. I've had a single contact on this band, with a pretty fair report from someone in the northern part of VK6.

Our QSY to 20 metres was met with a very similar signal, but nothing at all on 15 metres. I had to consult a chart to check where I might find the **12 metre** band! I missed out badly in tuning this one. The trusty MFJ Antenna Analyser tells me I'd do best on a very illegal 24.750MHz, but from 24.89 to 24.99MHz I still see a very respectable 1.3:1 to 1.45:1 band-edge to band-edge, which means I could easily have a contact anywhere in the band.

Not that I *have*, mind, other than a quick "does this one work?" to a local a few months ago. The bottom line here, then, is that this antenna, despite a surprising lack of appendages or tricky little tuning and trimming adjusters, tuned almost exactly where I wanted it to... the first time.

It hasn't been down since that first

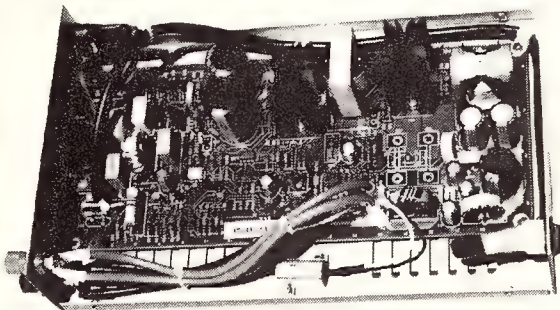
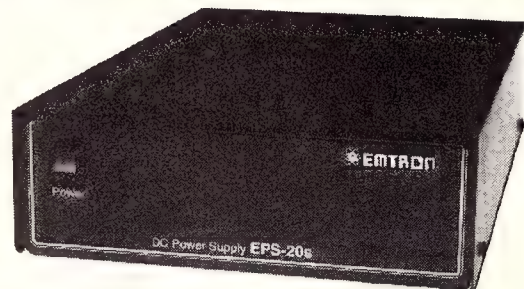
day it went up, and I think that's a great plus. It would have been a real pain in the neck to be whacking it up and ripping it down several times to get the darned thing right. The amazing accuracy of assembly was really brought home to me when I compared this ease to some of the problems I'd had with earlier antennas. One was particularly annoying. I'd get one band right, only to find that I'd knocked another three out by a large amount. One quick paragraph about the overall quality of construction, too: what a nice job for a mass-produced item! I couldn't find a single sharp edge, there were enough power line warning stickers to wallpaper the loo, the manual was both thorough and complete without being silly, and the packaging was sufficient for me to unpack the contents some 17,000 km from the factory with not a thing damaged or out of place.

Summary

Don't kid yourself into thinking that you'll ever get beam performance from a vertical. I didn't expect it, so I wasn't disappointed. In most situations you should get at least a two or three S-points higher report if you're using a good beam

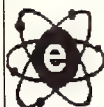
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The instruction manual is written in English, rather than Jinglish, with well notated diagrams which make the assembly of what is a relatively complicated antenna quite straightforward.

than a station using a vertical — but you'll miss the rare DX off the side of your beam while I'll hear everyone equally.

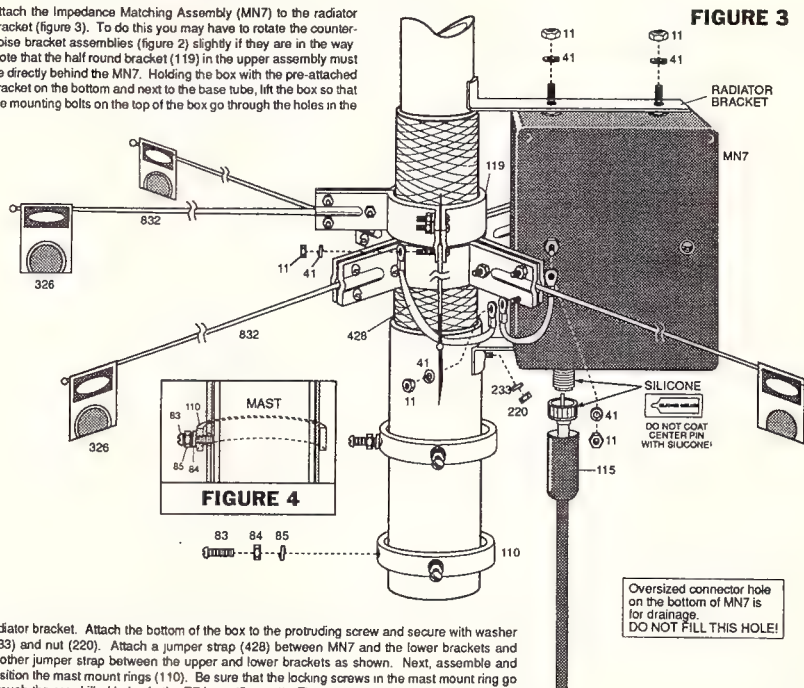
I'm also told that a vertical will always be prone to more noise than a beam, but I'm not totally convinced. I can often listen comfortably to signals which other Melbourne stations will report as very marginal due to noise, yet I'll have a solid copy. Mind you, there are stations I simply don't hear. Cushcraft did some big things with its five-band R5.

The R7 is a worthy addition to Mr Cushcraft's line of antennas, and I'm here to tell you it'll take a very special antenna indeed to get me back up the ladder with a determined look and a spanner in my hand.

The Cushcraft range of antennas is represented in Australia by DAYCOM Communications in Huntingdale, Victoria, and it has a recommended retail price of \$937.

#2 - ASSEMBLE BASE SECTION

Attach the Impedance Matching Assembly (MN7) to the radiator bracket (figure 3). To do this you may have to rotate the counterpoise bracket assemblies (figure 2) slightly if they are in the way. Note that the half round bracket (119) in the upper assembly must be directly behind the MN7. Holding the box with the pre-attached bracket on the bottom and next to the base tube, lift the box so that the mounting bolts on the top of the box go through the holes in the



radiator bracket. Attach the bottom of the box to the protruding screw and secure with washer (233) and nut (220). Attach a jumper strap (428) between MN7 and the lower brackets and another jumper strap between the upper and lower brackets as shown. Next, assemble and position the mast mount rings (110). Be sure that the locking screws in the mast mount ring go through the pre-drilled holes in the R7 base (figure 4). The counterpoise rods will be attached later (step 5).

Oversized connector hole on the bottom of MN7 is for drainage. DO NOT FILL THIS HOLE!

EQUIPMENT EVALUATION....

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AEA SWR -121 HF

Hi-tech SWR measurement

By Neil Duncan, VK3ND

Nailing that perfect 1:1 SWR at your favorite frequency by tweaking various antenna adjustments is both a satisfying and an elusive goal to achieve. What kind of instruments do you need to do this? For many HF operators, there is an SWR bridge built into the station HF rig which provides the rather mundane ability to measure SWR by transmitting RF through it. Surely that is enough — after all, who cares what the SWR rises to outside the band edges?

With such a simple arrangement, there are several down-to-earth negatives. First, you have to transmit *real* power and that means you will be heard by real people in the real world. Second, you have to be in the shack to perform such tests and, let's face it, the shack is not really the most convenient place from which to make antenna adjustments. Third, the exact SWR pattern over the full range 1 to 30 MHz may be of very great interest to you (locating out-of-band resonances, indicating its usefulness as a receiving antenna and so on). Your rig shouldn't be capable of transmitting out of the amateur bands, so how do you make these measurements legally?

I now know of two solutions to this SWR measuring problem with the arrival of the **AEA SWR-121** 'HF analyst'. One is to haul the rig and SWR bridge up the tower with you and let fly with much RF (including some high-powered out-of-band transmissions). The other solution is to use one of the new breed of **SWR analysers**. Not so long back, we looked at a couple of **MFJ** SWR analysers and they seemed ideal with their inbuilt 'flea-powered transmitters' and SWR bridge combination. Now there is an even more slick (albeit more expensive) mechanism available in the form of the SWR-121 'HF analyst' from the Washington, USA company, AEA.

What is an SWR-121?

What we are presented here is with a plastic box about the size of half a brick (but weighing nothing like one!) with an uninspiring front panel. There is one rather large LCD panel and 15 flat push-buttons printed on the plastic case. I can't locate a frequency knob, a forward/reverse switch or any more than one coaxial connector. This is not your conventional SWR meter...

Inside the SWR-121, we have a low-powered transmitter covering 1 to 32.99 MHz feeding a four-legged resistance bridge. One of the four legs of the bridge is your antenna. If you present 50 ohms there (this can be internally changed to 75 ohms), the bridge will be in a null state at the frequency being generated and your SWR will be read as 1:1. The really spectacular parts of the SWR-121 lie in the way its 8-bit microprocessor controls the frequency being generated, and the way in which the LCD displays the results. The giant P80C51BH chip effectively creates a spectrum analyser from a fully-fledged frequency synthesiser/display combination.

Let's put this into practical terms. Imagine you have just put up a tri-band beam for 20, 15 and 10 metres and you want to see how it is going. When you first switch the SWR-121 on, you are presented with a graph whose center x-value is 10.0 MHz and whose y-axis measures SWR at that single frequency.

You can alter that frequency by pushing the appropriate numbers (in kHz) and pressing ENTER. In this mode, the device both displays the SWR at that frequency on the screen and, if it finds an SWR below 10:1, emits a series of beeps, the pitch of which is determined by the SWR. This is designed to help those of us who like to look at the surroundings when we are up the tower adjusting things rather than peering at an SWR bridge. The idea is to tune the antenna while keeping an ear on the

pitch at which those beeps come out of the box. This would also be a boon for sight-impaired amateurs down in the shack I imagine.

More probably, though, you would want to see that graphical display do its thing with the new beam antenna. There are two concepts to master before you can drive the SWR-121 properly. One is that you must have a sensible center frequency and the other is that you must have a suitable width on the display.

Okay, how about we look at the entire 12-30 MHz spectrum and see if our antenna works? Let's see, that would mean a center frequency of 21 MHz and a width of 9 MHz. Typing 21000 and pressing ENTER takes care of the center frequency.

Now for the width. There are 110 dots across the display and that means, for 9 MHz, I'll get 82 kHz per dot. Fine, press 82 and WIDTH (up arrow) and it is done. By the way, I got 82 by dividing 9000 by 110 and rounding up. More probably, you would use the preset widths rather than an ugly one like 82 (you step through them using the WIDTH button). Hmm, just how do you know what the leftmost and rightmost frequencies on the screen are? Simple. Since there are 110 dots across the screen, just multiply 55 by the step size and add and subtract the result from the center frequency. Simple? Grrr, I reckon you'd be better off hauling the IBM PC up the tower with you too!

After beating that 'width' hurdle, things get better. For a start, you get a graphical display of the frequency/SWR response quite superior to any other I have ever seen. This feature will have an enormous appeal to the serious radio amateur and to the commercial user. Anyway, what about seeing the performance of the beam on 20 metres? 14200 ENTER, 5 WIDTH up-arrow and away it goes. In nine seconds, we have a graph of our beam's SWR performance on 20 metres, centred on 14.2 MHz and with width ± 275 KHz.

Reading the display

The results of all our hard work are seen as a graphical display. The SWR-121 takes one scan of the desired range, memorises the highest SWR in the region and then creates a y-axis scale with that figure as its highest number. The device then scans repeatedly, giving a dotted curve as it goes. You get

one pass each nine seconds.

Along with the graph, you are provided with a single numeric readout of the SWR at the center frequency, the center and width in kHz, a y-axis scale and a measure of the feedline's 'return loss' in dB. I presume that last one to be a simple mathematical conversion of SWR into dB loss (saves you looking it up, I guess).

If you make adjustments, the SWR-121 will provide you with feedback of the result in nine-seconds bursts. It is more likely that you would use the 'beep mode' for actual tweaking and the full graph mode for the 'sitting back and congratulating yourself' mode.

There are some other options though. By pressing special button sequences, you can:

- freeze the display so that you can have a good look
- automatically center the display at the frequency corresponding to the lowest SWR
- increment frequency by a fixed amount
- fix a y-axis (SWR scale)
- set up a plot between two frequencies corresponding to (say) the 2:1 SWR points

Computer control

If you plug a standard 3.5 mm stereo plug into the rear panel of the SWR-121 and wire it to the appropriate pins of a plug matching your RS232 computer port (the connections are given) then your computer can take control of the device.

This allows a simple terminal program to control the frequency, read the SWR into the computer and zoom in or out of the desired frequency. I tried this with great success using the Windows terminal program set to 9600 baud, no parity, 8 data bits and 1 stop bits with immediate success. My PC controlled an SWR meter, something it had never done before! On the other hand, you can go one step further and buy the AACOM software for the SWR-121. This will not only give you a well laid-out computer control arrangement for the device, but will also display the resulting graphs on the PC's screen. In the kit you get a disk which can be copied to your PC along with a pre-made cable, terminated in a DB-9 socket.

I found the software acceptable, if a little cumbersome. It gives full control of the SWR-121 and allows manipulation and printing of the results. A 'pull down

window' style of operation is provided, resulting (eventually) in a close emulation of the screen of the SWR-121 itself. A reasonable range of printers is supported by this software I note.

On the positive side, the software controlled the SWR-121 flawlessly. On the negative side, I couldn't get the printing routine to work. It kept telling me I hadn't loaded a graph yet. That problem is in addition to the fact that I needed a DOS file called GRAPHICS.COM to be present in the area where I installed the software.

I found the monochrome CGA graph-



ics display to be a little on the primitive side. I wonder why AEA didn't think of automating the width routine whilst the computer is in use?

The manuals supplied with both the SWR-121 and the AACOM software are really quite good. They are of the 'keep the cost down' variety with simple A4 pages and one staple. I found the contents to be acceptably clear but in a snakes and ladders format.

Let's put it this way, AEA — you should join the queue of manufacturers which have had a long, hard look at the way the Japanese present their manu-

als. What you are missing in your manuals' presentation is called 'quality'...

Summary

I found the SWR-121 to be a delight to use and operate. It achieves a degree of thoroughness quite unlike any SWR measuring system I have ever seen. My only criticism on the device itself concerns those pushbuttons.

Clearly, the SWR-121 is superbly built and will withstand some gross weather conditions, grubby hands and some up-the-tower bashing. I guess 'membrane' buttons are sensible from this perspective, but the lack of tactile feedback when you push them is frustrating. Yes, there is a beep, but you really have to listen hard.

At a landed price of nearly \$800, most users of the SWR-121 will be in the 'serious' class. They won't be disappointed users, either. This is a professional-grade instrument and will find its way into some really demanding scenarios — as well as into hoards of radio amateur shacks. Internally and externally, the construction of the SWR-121 is absolutely first class. You pay for what you gets, I always say.

You may also be interested to learn that there is also a VHF/UHF version of the SWR-121 on the market. It has the designation **SWR-121 V/U**.

Amateur Radio Action thanks ATN Antennas for the loan of the review AEA HF Analyst. Emtronics is the official Australian distributor.

SPECIFICATIONS

RRP: \$795

Characteristic impedance:

50 or 75 ohms (selectable)

SWR range:

1:1 to 65:1

Accuracy:

±10% typical

Frequency range:

1.000 to 31.999 MHz

Maximum display width:

22 MHz

Output power:

5mW into 50 ohms

Power source:

12-16 volts

Serial port:

9600 baud, XON/XOFF handshake.

Size:

103.2 X 54 X 204 (mm, WHD)

Weight:

740 gram

EQUIPMENT EVALUATION.....

HIGH SPEED PACKET RADIO

By John Day, VK3ZJF

This is the first of a series of packet radio articles and it will be continued in upcoming issues.

In the beginning...

"In the beginning there was 1200 baud packet, and then, many years later, along came faster packet as an answer to users' demands for higher and higher speed."

Or is that the way it *really* was?

I suppose to many packet users it is logical to assume that development in packet radio has been a process of demand-driven evolution. But, interestingly, such is not the case!

When packet development started in the late 1970s the amateurs who built the equipment used whatever they had around the shack.

Of course, in the best traditions of amateur experimentation, this led to incompatibilities of equipment because some people used 1200bps equipment and some used 2400bps equipment. But this was to be of little consequence in the longer term.

When the first volume-produced TNCs appeared on the market they were all designed to support a standard protocol, AX.25, and a standard modulation scheme, 1200bps AFSK, exactly as we use today.

Why this setup? Well, who knows, but I would suggest that one of the big priorities was that a 1200bps AFSK system could be built cheaply, got going easily and was reliable.

Perhaps not optimum for what we wanted to do in those bygone days, but appropriate technology for the times.

Faster...

By early 1984, over 10 years ago now and less than 10 years since the concept of packet radio came into existence, amateurs started wanting higher speed products to allow them to move more data more quickly.

Without going through the entire history of packet radio, it is sufficient to note that within only a year or two of AX.25 actually coming into being, amateurs in the US were already designing and building 9600bps packet modems.

Commercially, 9600bps was not destined to be an overnight success; a Kantronics-designed 2400bps system was destined to be the first higher-speed packet solution sold commercially, but now the time of 9600bps has come so I feel we should spend some time looking at the techniques involved in high speed packet operation in somewhat more depth than we have done to date.

Why go faster?

I suppose from the outset we need to answer the question, "why do we *need* to go faster?". Well, anybody using a packet channel in a crowded metropolis will soon realise that even the 13 channels allocated for packet radio on two metres have become somewhat overcrowded.

Two possible solutions for this problem exist. First, we could increase the number of channels — this has been done by opening up new channels on 70cm, but to little avail as many users are just not interested in changing their operating band.

Second, we can move more traffic on those frequencies we do have.

Alternatively, we can establish high-speed links from one part of the packet system to another to move data around for the end users who want to stay on two metre 1200 baud packet.

Our basic 1200 baud packet system is very wasteful of bandwidth. Presently our channels on the VHF and UHF bands are 25 kHz wide, which means if we transmit 1200 bits per second then our efficiency can be quoted as $1200/25,000$ or 0.048 bits per second per hertz. So to increase our speed we can utilise our present bandwidth more efficiently.

If we could increase our speed to 9600 bits per second then our efficiency would be $9600/25,000$ or 0.384 bits per second per hertz. Thus for a given amount of bandwidth we can get eight times the data through in a given amount of time.

Naturally, questions of efficiency are not the only questions with which we need concern ourselves.

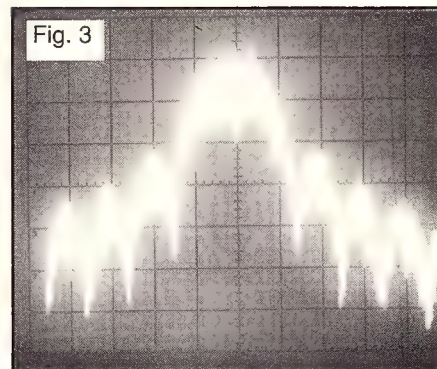
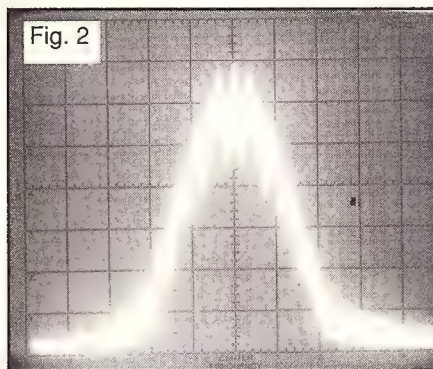
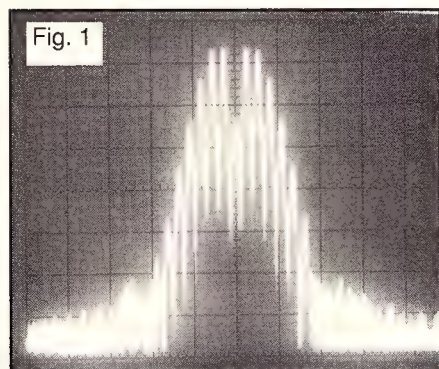
Regulatory questions (how much bandwidth a signal is permitted to occupy at specified frequencies), technical concerns (about the complexity of the equipment required to handle the data transmission) and economic concerns (about the cost of the equipment used) are also important.

We will not, at this point, delve into the background of digital data transmission systems and the design of modems.

We will, instead, have a look at the present amateur standard 1200 bps and 9600 bps systems and compare them from the end user's point of view.

Occupied bandwidth...

When we look at the signal we generate from our radios we don't usually give much thought as to how much of the band we actually occupy. To see what I mean take a look at Figure 1. This photograph, taken from a spectrum analyser, shows the spectrum generated



by a single audio tone (1.3kHz) when fed to a radio and adjusted for 3.5kHz peak deviation, which is generally much lower than most amateur rigs are set for.

Each horizontal division in the photo is 5kHz and each vertical division is 10dB.

Thus, a 25kHz wide channel occupies 2.5 divisions either side of center. From this you can see that the transmitted signal stays well within the channel boundaries.

If you look carefully you will notice that the level of the transmitted signal components is approximately 40dB below the peak at ± 7.5 kHz.

This is worth remembering, because the IF filter in virtually all amateur FM transceivers these days is 15kHz wide, or ± 7.5 kHz.

Interestingly, this photo shows us that to avoid introducing distortion into the received signal we should probably set our voice modulation at around 3.5-4kHz deviation for modern radios.

Now, suppose we look at a packet signal. Using the same test set-up I took the output from a packet TNC (a Kantronics KPC-9612, using the 1200bps section) and fed it to an Icom IC-W21A hand-held, which is what I use on the bench for packet testing. The deviation was set for 3.5kHz and the result is shown in the spectrum analyser photograph in Figure 2.

Note that the discrete modulation sidebands of the sine wave have disappeared, being replaced by a 'shell' which is produced by the random nature of the modulating signal over a period of time.

You will notice that, as in the sine wave case, the energy is confined to the range ± 10 kHz, which is well within channel bounds, and that the signal components are 40dB down at ± 7.5 kHz — the filter bandwidth.

This also illustrates why we say that packet deviation should never be more than 3.5kHz. If the station trying to receive a signal is using a reasonably

modern transceiver then any more deviation will result in distortion and higher error rates... a highly undesirable situation.

How to squeeze more in...

Now that you have seen the bandwidth taken up by a 1200 baud packet signal you may be inclined to ask how we can ever hope to get to 9600bps in the same bandwidth!

Well it can be done, and it isn't overly difficult, but it does take a bit of work.

I suppose that to properly understand what is happening in a 9600bps packet system I should spend a lot of time introducing such concepts as Nyquist sampling theorem, power spectral densities, Rayleigh fading and multi-path distortion.

But, and you should all be truly thankful, I won't!

But I will make one simple illustration. Taking a digital signal and feeding it to a radio will not necessarily result in something useful. By way of illustration I set up a laboratory serial data generator and fed it to a signal generator. The result is shown in Figure 3.

You can see that significant energy remains which is outside the IF pass-band of the receiver (± 7.5 kHz) and thus is useless in the data transmission process and could cause all sorts of problems and errors. But there is also large amounts of energy flooding over into the adjacent channel and even channels beyond that, a sure recipe for disaster!

However, it is possible to filter a signal such as that of Figure Three to produce something which is a little more useful.

For Figure Four I connected the 9600 baud port of the Kantronics KPC-9612 to an Icom IC-281H transceiver (which is set-up for 9600bps packet operation), set the deviation to 3.5kHz and captured the result.

As you can see, anything beyond the first null (about ± 7 kHz) is attenuated and that by ± 12.5 kHz (the edges of the channel) our energy is 50dB down on the peak value.

So it is possible to fit a 9600bps data stream into a 25kHz wide channel. In the last paragraph I said it is possible to filter the signal in Figure 3 to arrive at the signal shown in Figure 4. Well, yes it is possible, but it is not often done.

Generally the filtering effect is achieved by pre-shaping the pulses as they are generated and before they are fed to the radio.

This is actually much easier than filtering the pulses after they are produced. It is a fairly simple matter to use a small ROM (read only memory) to produce digital information which is converted to analog waveshapes in a digital-to-analog converter, which is then fed to the radio. If you look at the circuit of a 9600bps modem you will see that some fairly strange bits of circuitry are used to generate the pulses.

This is so that very little filtering is required to produce the modulating signal. Otherwise the necessary analog filters would be complex, require very tight tolerances and be difficult to use with changing temperature and so on.

Some newer modem designs use large scale integration ICs originally intended for commercial applications to produce simple, low-cost amateur packet equipment (DRSI and Kantronics), whereas others (PacComm and MFJ) use a design requiring a larger number of ICs which does the same job but is more costly to produce.

We'll bring you more about high-speed packet in next month's Packet Racket.

Cheers from John, vk3zjf@vk3blw.

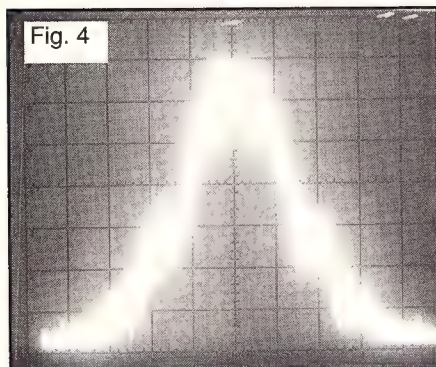


Fig. 4

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STANDARD C5718D AND C1208D

Some faceless new rigs

By Tom Moffat, VK7TM

The Standard Company may have solved a big problem for me with the release of its latest VHF/UHF mobiles. My problem is that I've got one of those new-fangled cars with no dashboard. Well, maybe only newer-fangled, the car is five years old and replaces my faithful 1968 Holden 'Yobbomobile' mentioned many times in these pages in the past.

The Holden DID have a dashboard, made of real metal. Beneath it I could sling any and all radio equipment I might wish to use during my travels. At one stage this included both an Icom IC-3200 dual-band VHF/UHF transceiver and an IC-735 HF rig, securely attached to the metal dashboard with good strong steel bolts. And there was still room for people's knees (almost).

But since I acquired a 1989 Nissan Pintara about two years back, I've been off the air, mobile wise, except for the occasional foray with a VHF/UHF hand-held. There's simply no place to mount the radio gear, because the

thing that used to be the dash now slopes away to oblivion near where your feet go. There is a center console which might accommodate the IC-3200 if I resorted to some radical butchery, but this requires more nerve than I possess.

What to do? What to do? Well, a shipment turned up the other day, containing two new FM mobile rigs from Standard. And did I get a surprise! When I opened the first carton, I was greeted with a most startling rude noise. Other people in the room glared in my direction and said "Who did *that*???" Oh, the dog, the dog! The dog did it, of course; one should place the blame where one can at times like this.

But it wasn't me, or poor defenceless Bruno. It was the radio's carton, going off like a big whoopee cushion as I extracted its styrofoam packing. I must admit it was the first

time I ever heard a radio fart, and it was only a brief illustration of one of its more unusual qualities.

Further examination revealed that the radio had two backs, and no front. How do you turn it on? What do you do with it once it *is* turned on? Well, there's a place to plug in a microphone, so let's unwrap that. Aha! Mega-buttons on the microphone, one of those remote-control jobs. But as for the radio itself, a blank plastic surface where the front panel should be.

So remote control is the *only* control.

Heeyyy! (Sound of penny dropping.) If there's no front panel, this radio doesn't have to go under the dash where I can reach it. Maybe I could mount it under the seat, or in the glove box. So there you go. A practical solution to the 'goodbye-dashboard' syndrome. With the radio itself out of sight, out of mind, what remains is a thing that looks like the hand-held I'd been using all along, only with a curly cord at the bottom instead of an antenna at the top.

This first rig, the impolite one, turned out to be a **C5718D** twin-band VHF/UHF unit. In other words,

you get what are virtually two transceivers, completely independent of each other, operating within the one box (and the terms **dual-band** and **twin-band** are now completely interchangeable; they mean the same thing.)

Now to open the other carton. The radio within emerged with much more decorum than the first. It was a **C1208D** VHF-only unit, much like the first but about half the thickness. Again, only a mic connector on the 'front'. This C1208D is very similar in operation to the twin-band unit, so we will treat them as one except where there are significant differences.

But first, some things exclusive to each radio. The twin-bander, being somewhat thicker, presents enough surface to support a proper front panel, and one is available as an option if required. This replaces the blank plastic insert mentioned



above, and appears to connect to the radio via a short cable. The panel can thus be mounted upside-down or right-side up, so that the radio can be used as a base station with the speaker pointing up, or as a mobile (on a proper dashboard) with the speaker pointing down.

The single-band unit comes in both VHF and UHF versions, and each one carries an auxiliary receiver for the alternative band. The single-banders, being fairly skinny, have no front panel option. In fact, there's no speaker within the radio itself so if you want to hear things loudly you must use an external speaker. The single-banders are definitely for out-of-the-way mounting.

The microphones for both units look pretty much the same. They should really be called hand-held controllers, I guess, because talking into them is only a small part of their purpose. They have an LCD display at the top, an array of little pushbuttons in the middle, and a speaker/microphone combination at the bottom. In other words, just like a hand-held transceiver.

But where your hand-held might be limited to two watts or so, the Standard mobiles can deliver a healthy 50 watts to an antenna on top of the car. This is a lot of power from such a small transceiver, but there is a tiny muffin-fan on the back to provide some air conditioning should the radio get hot. The transmitters seem to be quite efficient, and during the time I was playing with them I never saw the fan start on either radio.

One thing you'll notice missing from the microphone/controller is knobs. Volume and squelch control as well as frequency selection are all done solely by push-buttons. The LCD has vertical bar-graphs to give a visual indication of where the volume and squelch are set. You go push-push-push on the button and the indicator goes up-up-up or down-down-down.

On the single-band rigs, separate bar-graphs are provided for volume and squelch. The twin-bander, with its more crowded display, makes one bar-graph serve for both volume and squelch. But there are separate displays for each band, and each can have independent volume and squelch settings. Frequency changing is done by up-down buttons or by direct keypad entry, and the results are shown on the display in nice big characters. I wish hand-helds had displays that big...

I found the volume and squelch controls a little hard to use. I felt uncomfortable needing to refer to the instructions just to adjust the squelch or volume. The single-band unit I tested had an annoy-

ing habit of losing its volume and squelch settings (as well as its repeater shift and offset settings) when left switched off overnight, which meant that you had zero volume and zero squelch — a dead radio until you went through the setup procedure again.

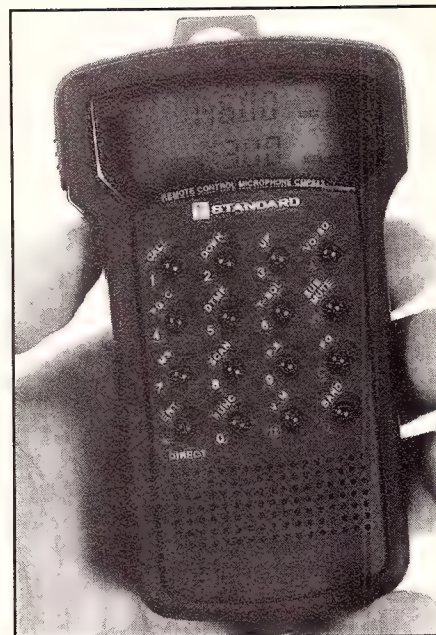
Perhaps Standard should consider placing three little knobs on top of the microphone, for volume, squelch, and frequency. This arrangement would be much easier to use, but it would also introduce some encoding problems because it appears that every single command from the controller to the radio is sent along as serial data, on one wire within the mic cord. This data scheme appears to be a good practical choice.

A nice touch, literally, for the microphones is their rubberised finish. They feel nice in the hand, and they have a good grip. Even if your hand is sweaty I doubt they would slip. At the other end of the scale, I found the rubberised finish much warmer to hold than a normal plastic microphone. I actually did a comparison test, one type in each hand. The case of the twin-bander is covered in a similar rubber material. The single-band unit is of good ol' steel, very strong and rugged.

Frequency coverage in the units I tested was limited to the amateur bands only, which is a rare occurrence in this day and age. However an advert for them in a recent ARA claimed 'super-wide receive coverage'. I suspect these radios would be quite capable of doing just that, but the feature was locked out in the review samples as it must be in some less-enlightened countries. There is probably a code sequence to be entered from the keypad to open up the receiver's range. Purchasers of these rigs should make sure this is already done, or they are told how to do it.

The instruction manuals say nothing at all about wide-band coverage, although the manual for the single-band rig states that "...as received from the factory, the transceiver is set to receive amplitude-modulated (AM) signals in the following frequency range: 118 to 142 and 250 to 327 MHz. This is enabled by accessing area 17 of the SET mode." However on the rig I tried there was no area 17. You could cycle through from 0 to 16 and then it would jump back to 0 again. But this is a pretty strong hint that wide-band reception is there along with the capability to produce properly-demodulated AM signals on the aircraft bands. All you need is the code to unlock them...

The single-band rigs have a whopping 100 memory channels, each of



which can store duplex/simplex mode, tone encode and squelch frequencies, and parameters for paging, code squelch, DTMF operation, and scan method. The stock version of the twin-bander has 40 channels for each band, but this can be increased to 100 for each with an optional memory add-on unit.

It should be noted that in these Standard radios, the tone encoder/decoder and DTMF units are both optional. Many other rigs come with the DTMF stuff as standard, but I have always considered this a waste in Australia. Tone squelch, however, seems to be getting more and more popular, so it's nice to be able to get the tone facilities without the DTMF as well.

Scanning

The radios have all the usual scanning functions such as memory scan and programmed scan within a specified frequency range. Three modes of stopping the scan are available: Pause scan, in which scanning resumes after about five seconds even if a signal is still being received; Busy scan, where scanning stops for the full time a signal is received and resumes about 1.5 seconds after it disappears; and Hold scan, where the scanning stops permanently upon receipt of a signal.

In addition the Standards have another scanning function which I have never encountered before in which each memory channel can store its own scan stop mode. A signal on one channel can cause the scanner to stop and then start again after five seconds, while a signal

continued over page...

EQUIPMENT EVALUATION.....

STANDARD C5718D AND C1208D

(Continued from previous page...)

on another channel can make the scanner hold until the signal disappears, and then resume.

You can thus program a channel containing a busy repeater to stop the scanner for only five seconds so you don't get stuck there forever. Or you might prefer to program somebody's 'private' simplex channel so the scanner stops for the full duration of a transmission and then resume. That way you won't miss any of the juicy gossip.

Because the rigs I tested were limited to amateur bands-only receive I wasn't able to test this channel-by-channel feature properly; the amateur channels are pretty quiet in Hobart so you wait a lot for any action. But if wide-band receiver coverage were enabled this scanning arrangement would be great. Congratulations to Standard for this one, it will be a real winner!

Both the new Standards have been designed with packet operation as a high priority. The radios have special 9600 baud interfaces specially designed

for the G3RUH-type TNCs. There is not a lot of explanation about how this is meant to work; it appears you're meant to rely on documentation for the packet equipment to use it with these radios.

Special provision is also made for 1200 baud AFSK packet modems such as the Pocket Packet unit. In this case a simple 'Y-cord' adaptor is necessary so that both the packet modem and the microphone can remain connected at the same time. This is needed since the microphone still has to control the radio's functions.

The instruction manuals for these radios are very comprehensive, but their translation from the Japanese is rather quaint. Occasionally one encounters friendly advice such as "Firmly tighten the battery terminals may not be loosened" or "Note that overmodulation decreases a signal incoming rate".

One major section is headed 'Operation as a Repeater'. Hey, I thought, here is a radio that can be driven to the top of a hill to provide wide-

area communication in the event of an emergency. Other radios have been able to do this, unofficially, but have never owned up to it in the instruction manual. (Actually, this Standard's predecessor did. According to the manual, you'd push the C5608's VHF and UHF band buttons together to put it into cross-band repeater mode.) But no, these radios are not for operation as a repeater. They are for operation *through* a repeater like any other two-metre rig. But I reckon the feature's there, hidden somewhere.

Installation of the units is described mostly by drawings, which is a nice idea. In the single-bander's manual there are two drawings, one showing the rig connected directly across the car's battery terminals. The other drawing shows the radio wired in parallel with the car's normal broadcast radio so the power goes on and off with the ignition. The text says to use the ignition switch method, and there's not a word about hooking the radio directly to the battery.

But I wonder if there is a mistake here. The reason is that the C1208D I had for review kept losing part of its memory functions if left overnight disconnected from the battery, as mentioned above. Is the radio perhaps meant to be powered up all the time so the car battery can keep the memory chips alive?

Many car broadcast radios have two power leads, one high-power switched lead for the main radio, and another low-drain lead that's meant to be powered all the time to keep the memories programmed. Maybe the C1208D is supposed to be hooked in parallel with the *unswitched* car radio power lead. This overnight amnesia behavior, by the way, occurred only in the single-band set. The twin-bander was faultless in this regard.

I decided to check the schematic diagram to see if there was a lithium memory battery within the C1208D. Perhaps, if so, it was simply going flat. But careful inspection of the supplied circuit diagram revealed that it was the wrong circuit diagram, for an Alinco hand-held instead of a Standard mobile rig! I doubt this was Standard's fault, I think the radio had been to a few reviewers before me and the circuit diagrams got shuffled.

Some current drain while switched off would suggest that the car's battery was being used to keep the radio's memory alive and, sure enough, I measured 3mA going into the single-bander. But, a test of the twin-band set revealed it was also drawing 3mA. Yet its memory remained



intact with no power supply. A true mystery...

On the air...

Now, after all that, how did the radios come up on air, in actual use? Very nicely, thank you. Nearly every station I spoke to commented on the pleasant audio delivered by the Standards. And receive-wise, they sounded pretty good

too, even through the small speakers on the microphones. I particularly liked the way the squelch worked; it snapped on and snapped off again very smartly.

The receivers seemed nice and sensitive (although I didn't measure them — somebody else does that nowadays) and there was very little evidence of the overloading and breakthrough which

plagues so many rigs these days. Even in this RF sewer where I live there was only the occasional splat and splot on one of the popular two-metre channels.

The radios have a special RF-squelch mode to combat that very problem. You



ARA TECH SPECS

STANDARD C5718 DUAL BAND MOBILE TRANSCEIVER

PRICE: \$1,599

SUPPLIED BY: Emtronics, Sydney - (02) 211 0988

PERFORMANCE EVALUATION

Test voltage 13.8Vdc unless otherwise nominated. All tests carried out with supplied power cable.

RECEIVER

Sensitivity

FM receiver sensitivity for both VHF and UHF bands was measured by the SINAD method with an RF test generator signal modulated at 3kHz deviation with 1kHz modulating tone. Input level in microvolts for 12dB SINAD. We did not produce receive graphs as there is no extended receiver frequency coverage in this transceiver.

Frequency MHz	Level in Microvolts
144.0	0.19
145.0	0.19
146.0	0.18
147.0	0.18
148.0	0.17
430.0	0.15
432.0	0.16
434.0	0.16
436.0	0.17
438.0	0.18
440.0	0.19

Signal Strength Indicator.

Relative signal strength in microvolts RF antenna input level. Measurements carried out at 146.0MHz and 435.0MHz.

Indicated Microvolts

'S' Units	VHF	UHF
1	0.1	0.1
3	1.5	1.5
5	1.9	2.0
7	2.5	3.0
9	3.6	4.8
9+30	4.0	6.1

Squelch Characteristics

Antenna signal levels measured in microvolts required to open mute gate at minimum and maximum settings.

	146.0MHz	435.0MHz
Min.	0.10uV	<0.1uV
Max.	0.38uV	0.34uV

Audio output = 3 watts RMS for 10% THD

Receive current requirements.

Standby	600mA
Full AF out	820mA

Memory Channels = 20 per band
= option of 100 ch per band

Tuning Steps in kHz

5, 10, 12.5, 15, 20, 25, 50 and 100.

TRANSMITTER PERFORMANCE

Maximum RF Output Power in Watts RMS
Operating voltage 13.8Vdc.

Freq. MHz	Output Power
VHF	
144.0	52.0
145.0	52.0
146.0	52.0
147.0	52.0
148.0	52.0

Medium Power	10.3
Low Power	3.0

UHF	
430.0	36.4
432.0	37.1
434.0	37.0
436.0	38.1
438.0	39.0
440.0	39.7

Medium Power	10.8
Low Power	3.0

Deviation Level in kHz.

	VHF	UHF
Voice	6.3	5.3
Tone	5.1	5.0

Tx Current Requirements in amps.

Operating voltage 13.8Vdc with supplied cable.

	VHF	UHF
High	9.2	9.4
Medium	4.0	5.1
Low	2.6	3.2

can arrange the squelch so that a signal must reach a certain RF strength, as well as quieting the noise, before the squelch will open. This is something all radios will probably need more and more as we fight for spectrum space with things like powerful paging transmitters and FM and TV stations.

In summary then, the good news and the bad news:

Good news:

- The general quality of construction. It is very nicely done, particularly that rubberised finish. There's nothing at all tacky here.
- The radios solve the problem of what to do when you can't mount a radio in your car in the traditional way.
- Lovely receivers, heaps of transmit

power but low current drain, great audio both transmit and receive, excellent squelch.

- Being able to store the scan-resume mode with each channel.
- The special provision for packet operation.

Bad news:

- The microphone-mounted control system isn't really all that easy operate, but in some cases with new cars, it's that or nothing at all. Thank heaven there's an optional front panel for the dual-band unit.
- That memory-loss problem with the single-bander. Does it need to be powered up all the time? Or did we maybe just have a faulty unit?
- That confusing Jinglish instruction

manual.

To buy, or not to buy? If there is a simple answer to the memory loss problem, and if they do provide good non-amateur receiver performance, I'd say one of these Standards would fill the bill, especially if you face an installation problem.

My choice would definitely be the twin-bander since I use both bands pretty well equally.

For the radio to be a proper 'scanner' it really needs to cover both bands, although with the alternative-band receiver one of the single-banders might serve this need well.

It is especially pleasing to see one of the non-big-three manufacturers come out with gear of this quality.

ARA TECH SPECS

STANDARD C1208 TWO METRE MOBILE TRANSCEIVER

PRICE: \$810

SUPPLIED BY: Emtronics, Sydney - (02) 211 0988

PERFORMANCE EVALUATION

Operating voltage 13.8Vdc unless otherwise nominated. All tests carried out with supplied power lead.

RECEIVER

Sensitivity

FM receiver sensitivity was measured by the SINAD method with an RF test signal modulated to 3kHz deviation with 1kHz sinusoidal tone. Input level is in microvolts for 12dB SINAD. Receive graphs were not produced due to no extended receive frequency coverage in this transceiver.

Frequency MHz	Level in Microvolts
144.0	0.18
145.0	0.18
146.0	0.18
147.0	0.18
148.0	0.18

Signal Strength Indicator.

Relative signal strength in microvolts RF antenna input level. Measurements carried out at 146.0MHz.

Indicated 'S' Units	Level in microvolts
1	0.15
3	1.2
5	1.9
7	2.7
9	4.0
9+30	5.0

Squelch Characteristics

Antenna signal levels measured in microvolts required to open mute gate at minimum and maximum settings.

Frequency	
146.0MHz	
Min.	0.15uV

Max. 0.39uV

Audio output = 3.2 watts RMS for 10% THD

Receive current requirements.

Standby	550mA
Full AF out	800mA

Memory Channels = 100 channels

Tuning Steps in kHz

5, 10, 12.5, 15, 20, 25, 50 and 100.

TRANSMITTER PERFORMANCE

Maximum RF Output Power in Watts RMS
Operating voltage 13.8Vdc.

Frequency in MHz	Output Power
144.0	52.6
145.0	52.9
146.0	53.1
147.0	53.0
148.0	52.8

Medium Power	10.1
Low Power	3.04

Deviation in kHz.

Voice	5.2
Tone	4.9

Tx Current Requirements in amps.

Operating voltage 13.8Vdc with supplied cable.

High	11.0
Medium	5.1
Low	3.1

EQUIPMENT EVALUATION.....

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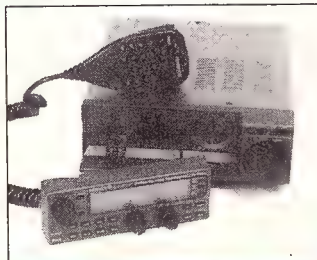
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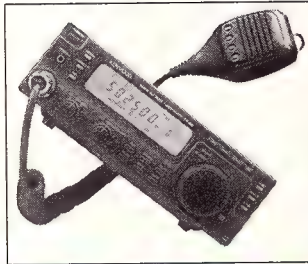
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- ☆ 72 MEMORY CHANNELS
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- ☆ 50/35W OUTPUT POWER



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*You'll take the high road
and I'll take the low road...*

More and more exciting news is emerging from computerland. If everything goes according to plan, life as we know it, both on and off the bands, is to be shovelled into computers.

Pastimes such as reading, listening to music, going to the movies, going shopping and even going to work will soon be old hat. A bedside computer will replace the dog-eared paperback for reading in bed. Musical evenings will mean gathering around the computer and going to the movies will mean another gathering around the computer, which will soon also replace television as the family focus.

Grocery and other shopping will be done via the computer so that housewives can look forward to total isolation unless the OM has chosen to do all his work from home via the computer. (Not necessarily a bonus on a constant basis, but one must adapt.)

Business travel is to be replaced with networked telephone conferences complete with video, and even the annual holiday could soon take place in front of the computer once virtual reality gets going properly.

Wearing a pair of goggles, the viewer is instantly transported to exotic and/or exciting locations without even having to step outside the front door. And all this is thanks to the computer.

This piece of equipment is also in the progress of taking over the humble shack.

Networking, bulletin boards, electronic mailboxes... amateur radio magazines are full of user-friendly advice. And if amateur radio is not enough, a whole new vista of information and friends can be reached by using the international telephone lines.

A computer with a modem is already becoming part of the '90s lifestyle. We, too could soon be

running up telephone bills of such magnitude that, used with the right sort of 'flexiplan', the mere savings could buy us helicopters and luxury yachts.

Mind-boggling as it all is, it is also food for thought.

More and more radio amateurs are bitten by the computer bug hard enough to desert the HF bands.

High tech advertising jargon talks in glowing terms about the 'super highway' along which we should all be travelling, so it is not surprising that so many want to rush in and be part of it all. However, let us not forget how much more rewarding it can be to travel along the country lanes and back roads of old.

Especially when, thanks to so many others choosing the super highway, we

**A bedside computer will
replace the dog-eared paperback
for reading in bed.
Musical evenings will mean
gathering around the
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movies will mean another
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also replace
television as the family focus.**

find less traffic and congestion on the back roads.

Sure, hundreds of amateurs still leave a token computerised watchdog to look out for DX news, but it is hardly the same as the old-fashioned 'listening around.' Still, good luck to them because, all in all, it leaves more room for the diehards.

These are the ones who prefer the more simple things in life; who are still filled with wonder at the very idea of 'wireless' and enjoy surprise meetings and unexpected rare DX finds on the HF bands.

They have not yet exhausted the possibilities of HF, or the uses of the ionosphere, and still enthuse over QRP, home-brewed rigs the size of a cigarette packet, new antenna designs or major improvements to the rig's performance.

They like talking with other like-mind-

ed amateurs and all those operators who live in remote and often interesting locations with no access to the Internet and the like.

Many enjoy CW, as a hands-on opportunity to use their skills rather than a computer and a keyboard. A recent survey done by ARRL indicated that CW is where the activity is to be found these days.

It could have something to do with propagation being so poor nowadays and the fact that CW may still get through when everything else fails.

Or it could be a subconscious hankering after the quiet life. But the present lack of propagation can sure be a killjoy. Some get so frustrated that they have deemed this state of affairs to be man-made along with the hole in the ozone layer.

Recent claims have been made that it is all the space junk which is eating up the electrons and spoiling our fun. If this is so we must of course not despair, but call on our reserve of optimism and look at the bright side.

Maybe the space junk will come in handy for new experiments. 'Junk bounce' comes to mind for utilising something which won't fade away with the declining sunspot cycle.

Just a thought...

Another thought is that if we are to believe everything we read and hear, the military and commercial sectors are becoming ever more fine-tuned to the super highway, confining their communications needs to the use of satellites and international telephone networks. We should encourage this trend as a development of great benefit to mankind.

Given a bit of a push, maybe in the not too distant future, the whole of the HF spectrum will thus become free to be totally handed over to the amateur radio service!

After all, that is where we came in; when short wave was considered unsuitable for communications and given to the radio amateurs for their use. The hands of time have turned full circle. Commercial users will be happy, the military users will be happy and we ourselves will be ecstatic.

Now, that is what I call progress.

IF YOU'RE NOT READING CB ACTION YOU'RE MISSING A LOT OF THE ACTION!

*** Scanner Reviews, * Scanner "secret frequencies", *Communication type software reviews, *Shortwave, *UHF Reviews...
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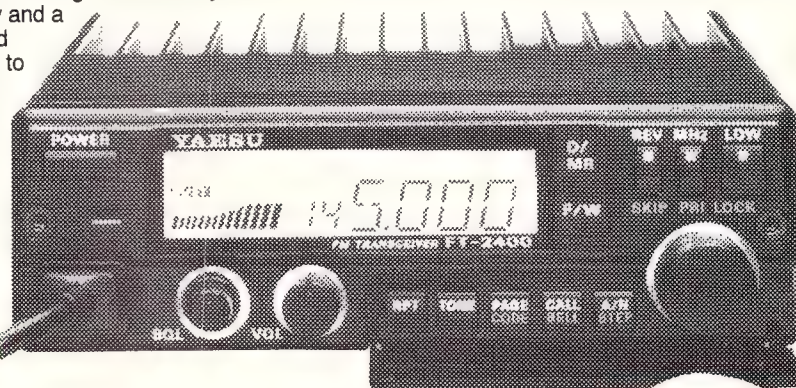
FT-2400H Rugged 2m Transceiver

The ultimate in dependability and reliability! The FT-2400H is built using commercial grade mechanical and electronic construction techniques and meets the tough USA MIL-STD-810C shock and vibration requirements, so you know you're getting the highest quality. A one-piece die-cast chassis/heatsink allows three-step output of up to 50 watts without forced air cooling. Plus, fibreglass circuit boards and chip components provide professional-grade reliability. It has a large backlit LCD screen, backlit knobs and 31 tuneable memories (which can store frequency and a four-character name of your choice). A customised microprocessor also provides Auto Repeater Shift to suit Australian conditions. Two-stage track-tuning and a dual FET mixer improve receiver intermod performance. Scanning functions include programmable scan limits, selectable scan resume modes, memory skip, and priority monitoring. Seven selectable channel-steps and CTCSS encode are standard features. Comes complete with MH-26 hand mic., mobile mounting bracket and DC power lead.

Cat D-3630

2 Year Warranty

\$699



Specifications

General

Frequency range: Transmit 144-148 MHz
Receive 140-174MHz
Channel steps: 5, 10, 12.5, 15, 20, 25 & 50kHz
Current Consumption: Receive: 400mA
Transmit: 12 Amp (Hi power)
Dimensions: 160 x 50 x 180mm (w/o knobs)

Receiver

Intermediate Freq: 21.4MHz & 455kHz
Image Rejection: Better than 70dB
Maximum AF Output: 2.0 watts into 8 ohms @ 10% THD

Transmitter

RF Output power: 50/25/5 watts (Hi/Med/Low)



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2 Year Warranty



FT-2200 Compact 2m Transceiver

The new FT-2200 is a compact, fully featured 2m FM transceiver providing selectable power output of 5, 25 and 50 watts, and includes the latest convenience features for more enjoyable mobile or base station operation. Built around a solid diecast chassis, it provides 49 tuneable memories, a large variety of scanning modes, an instant recall CALL channel, 7 user-selectable channel steps from 5kHz to 50kHz and is just 140 x 40 x 160mm (not including knobs). Backlighting of the large LCD screen, knobs and major buttons is even automatically controlled to suit ambient light conditions.

Also provided is a 38 tone CTCSS encoder, DTMF based paging and selective calling with Auto-Page/Forwarding features, and 10 DTMF auto-dial memories. The LCD screen provides a highly legible bargraph Signal/P.O. meter plus indicators for the various paging and repeater modes. An optional internal DVS-3 digital recording/playback board can also be controlled from the front panel, giving even greater messaging flexibility. Supplied with an MH-26D8 hand microphone, mobile mounting bracket and DC power lead.

Cat D-3635

SAVE \$300!

A deluxe 2m/70cm dual-band hand-held transceiver offering easier operation and more features than ever before, and now at an unbelievably low price! The FT-530 provides a flexible dual receiver facility with separate volume and squelch controls, allowing you to listen on two frequencies in the same band, or one frequency on both bands! Plus, the exclusive Australian version feature full 70cm band coverage (420-450MHz), selectable Auto Repeater Shift on both 2m and 70cm (suits Australian band plan), and extended receiver coverage as standard. Two VFOs and 41 tunable memories per band are provided, together with keypad or dial frequency entry, seven tuning steps and a one-touch CALL channel. The dual 5.5-digit LCD screen includes many functional indicators plus separate signal/P.O. bargraphs for both receivers. An LCD voltmeter function is provided so you can even monitor your battery's performance under load and estimate remaining battery life.

Other top features include: Inbuilt dual CTCSS encode/decode, CTCSS scanning, an auto battery saver (ABS) for extended battery charge life, a cross-band repeater facility and inbuilt clock with alarm and snooze functions. Also provided is VOX circuitry for use with the optional YH-2 headset, a user replaceable lithium back-up battery, and DTMF selective calling and paging. A DC supply jack allows transceiver powering and NiCad charging, with RF output in four steps up to 5W at 12V. The FT-530 comes complete with a high-capacity 1000mAH NiCad battery, antenna, belt-clip, carry case and approved AC charger.

Cat D-3620

Specifications

Frequency range:

Transmit	144-148MHz, 420-450MHz
Receive	130-174MHz, 420-500MHz, 800-950MHz

Current Consumption:

Auto power off	150uA
Standby (saver on)	16.8mA (both bands)

Dimensions: 55(W) x 163 (H) x 35mm(D)

Transmitter:

Power Output:	5, 3, 1.5, 0.5 (at 12V)
RF Power Output	2.0W (2m), 1.5W (70cm) (Supplied 7.2V 1000mA/H NiCad)

Receiver:

Sensitivity:	2m: <0.158uV, 70cm: <0.18uV (Ham bands only, 12dB SINAD)
Audio Output	300mW at 8 ohms (at 12V)



SAVE \$300

Customers who purchased an FT-530 between 15/8/94 and 30/9/94 as part of our previous promotion should have received bonus gift vouchers to cover their purchase. Please contact the store where you purchased your FT-530 if you have not received your Gift Vouchers.

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12. Yaesu FT-840 H.F. mobile transceiver, 2 year warranty, with hand microphone.

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13. Yaesu FT-890 deluxe HF mobile transceiver, 160m-10m, extended receive, all mode (SSB,CW,AM,FM), RF speech processor.

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Feedback...

A VERY STRANGE SIGNAL

For most of August users of 2 metres around the South Eastern suburbs of Melbourne had been experiencing strange transmissions around the 146.050 - 146.150 region.

Frequent pulses of carrier were occurring at half second intervals with some audio tones superimposed. It was about 30 kHz wide and drifted up and down the band giving locals a fairly hard time, sometimes holding up the input to Mt. Dandenong repeater for several hours and sounding like a 'carrier dropper'. The elusive signal was only present during normal working hours going quiet after about 4pm.

I first became aware of it late one evening while working in the shack on a new project, the Dick Smith 'spectrum analyser' kit.

Doug, VK3KMN called up on 2 metres and asked if I had heard the interference. I said that I hadn't and that if it did pop up he should call me so that I might get a bearing on it with the 2m array at my home in Frankston. Doug had previously contacted the Spectrum Management Agency seeking some advice on the matter.

He had received a sympathetic response, but regrettably they lacked the resources to pursue a tenuous problem that seemed only to be affecting the amateur service.

They did suggest that if more facts about the origin of the noise could be had, then perhaps they could look into the matter. Around 9:00am the following morning, the phone rang. Doug said he had the noise on 146.135 at his location about 20km. north.

I copied it ok with the beams on a due East bearing towards Cranbourne and Pakenham. We decided to go out and track it that morning. Doug put an eight element beam on the side of his company truck. (He runs Nally Radio Towers, a business installing radio masts in the region).

I dragged out my grotty old five element beam from where it had been laying on the carport roof for the past six years and attached it to the mast on the side of my Mitsubishi van.

As an afterthought, I grabbed the freshly assembled spectrum analyser

kit and oscilloscope and lashed it to the centre console with an elastic strap.

(I had only just put the last screw in the cover at 2am. that morning.) We met an hour later in Langwarrin, where we confirmed that the noise, now on 146.075, was still present and still due east.

Our next stop, in Cranbourne had the signal quite strong.

It was getting difficult to achieve a good bearing as its rapid pulsing and broad bandwidth made for fairly vague readings. I fired up the spectrum analyser and CRO under 240V inverter power and was rewarded with a resounding blip on the screen that represented our signal. We obtained a fresh bearing and set off yet again.

We were by then, becoming increasingly curious about the origins of this noise as we left the factories and houses behind. We pulled over at Clyde, surrounded by paddocks and blank faced cows.

The signal was enormous.

Doug joined me in the van.

He sat in the back rotating the mast through the window while watching the CRO.

I drove.

Shortly we spotted some road works - several graders were reconstructing a two kilometre stretch. Some temporary traffic lights were mounted on trailers to manage traffic flow.

I noticed an antenna on top of one of the traffic lights. The RF noise was now unbelievable.

We had our culprit.

The lights appeared to be in a master-slave relationship as only one was generating a signal. After trotting over to the offending trailer, which had a generator chugging away, we peered through the vents and observed a metal box with an LED labelled TRANSMIT pulsing away in sync with the noise spewing fourth from Doug's hand held.

Back at the van I inspected the interference trace more closely.

Pulling back on the view of the spectrum, I noticed an even bigger blip a bit further up the band. It became evident that the fundamental transmission was on 151.400 MHz

with some more crud spewing out around 156 MHz.

The transmitter must have been a real quality production!

Back at Doug's truck, we called up the SMA on his mobile phone and passed on this new information. They accepted the details with interest and promised to investigate further. This they certainly did as two hours later Doug received a call from one of their field operatives driving around Clyde looking for the road works site.

The outcome of the investigation is still pending.

One question I hope they ask is why 20-30 watts of RF is needed to run some traffic lights only 20 metres apart? I'm sure it would still work if one signal was in Broadmeadows! (Even further if they bothered to tune their receiver to our Mt. Dandenong repeater).

It proved to be an interesting exercise all round.

I had proven the worth of my new kit sooner than anticipated and had helped to uncover a little 'illegal trafficking' in the process.

Ian Jackson, VK3BUF, Frankston, Victoria.

NO DX...

"ABSURD" - that was my comment after reading last month's letter by Mr. John Robertson, VK3TAW.

Perhaps Mr. Robertson does not understand what DX is, or it could be that he's slightly deaf - maybe he's just not interested in DXing at all.

If he doesn't understand what DX is I suggest he asks an informed operator; if he's deaf he should visit an audiologist; and if he's not interested in DXing then I can only call him selfish.

The point I'm trying to make is that the DX columns by Jim Smith and Len Shaw are columns which a lot of amateurs and SW listeners look forward to reading every month. Whether they treat the DX info as a rough guide or as gospel, the fact is that it's extremely useful to DXers on this part of the globe. Calling this DX info "useless" and "wasted pages" are words which should never come from any operator who has the utmost respect for our hobby.

I couldn't help notice this apparent

Address your letters to:
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PO Box 622,
Mount Eliza 3930

ignorance, especially when he mentioned that there is nothing to be heard. How can you say that Mr. Robertson?

Can you please explain why I'm still working the DX?

Given the right time of day or night and band, I've noticed that you can be assured of 24 hour propagation. No matter how low the signals are, there is always a path open to somewhere in the world on a certain band at a certain time.

I myself am a newcomer to amateur radio having only been licensed the past four months. In these four months though I've worked the DX both on the nets and off and I'm closely approaching my first 100 countries worked. (And I'm still working new ones)

Just like amateur radio, ARA has something for everybody. It has got the best balance of articles for all the aspects of the hobby.

So there you have it Mr. Robertson, simply dropping the DX columns supposedly for your benefit and erroneous reasons just wouldn't be favoured by a majority of the readers.

Perhaps you should have used your ears to listen on the bands before you put pen to paper.

**Bill G. VK3DBI, Ringwood.
Victoria.**

MORE ON NEWCOMERS

This writer found the October issue of your magazine by accident while looking for information as to how to drive a IC-R72 recently bought to while away a few hours in retirement.

Your request on simple, practical ways to attract youngsters into the world of amateur radio is, in today's climate, best introduced into the school curriculum as is Manual Arts, or Home Economics, under the heading Leisure Activities.

Morse code should be a natural branch subject of English, as is grammar, spelling, writing, etc and should be started in the early years and gradually increased in speed etc. as is typing.

Electronics should be an automatic branch subject of Maths.

Maths should be made an interesting practical subject and not the dry mystical brain work it is today for a

lot of children.

Simplified physics.

What child is not fascinated by making coloured lights go on and off in different patterns using flip flops as in a Christmas tree for example?

If children learned in their very young days at school the importance of obedience to the natural laws of Electronics, they would have a much better understanding of why obedience to law is important, and why disobedience to law brings disastrous results.

Think of the consequences!

Sincerely

A seventy year old newcomer,
**Wally Fookes, Sandgate,
Queensland.**

WEATHER SATELLITES

A couple of days ago, by chance, I bought a copy of the October issue of "Amateur Radio Action".

I am very interested in the article "Weather Satellites and Remote Imaging".

It mentions a previous article covering some of the equipment needed and I would very much like to get a copy of this, either a back issue or photocopy, and enclosed is a cheque for \$7, hoping this may be about right if available.

I am surprised at the detail in the picture on page 53, I can pick out the family farm, no trouble.

Some time ago I bought a weather fax programme, and after lots of trouble, changing computers and bits of computers, got it to working very well; but I lost confidence in such programmes plugging into any computer and working.

It still will not work in my main computer. Later on I made a Lindenblad aerial and a preamp for satellite reception, but wasn't confident enough that the programme would work to buy it.

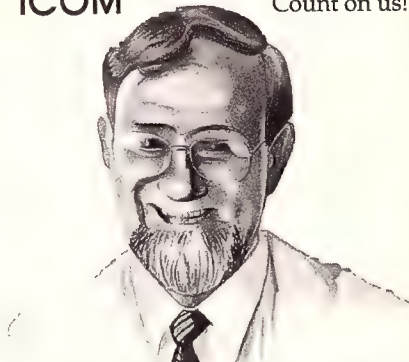
However, your article has renewed my interest and I am looking forward to doing something about it.

Incidentally I get strong and apparently clean signals from the NOAA and Meteor satellites on my local vertically polarised T V antenna with booster, for channels 1 and 4.

**R.H. Beinke, Quorn, South
Australia.**

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VK amateurs may have noticed that P29 has become a somewhat rarer country on the HF bands in the last year or so. This is because the four arguably most active P29 stations have all closed down in that time: Shoji P29JA left in July 1993, and Dave P29DK, Pete P29CW and I all left Papua New Guinea between March and May 1994. This is the story of my three years activity as P29DX.

My 'home call' is G4JVG and I have been a keen DXer since 1978, and even before that as an SWL.

When the opportunity of a three-year contract working at a radio monitoring station belonging to the Spectrum Management Department in Papua New Guinea presented itself, I jumped at the chance.

The SMD in Papua New Guinea was a department of the Post and Telecommunication Corporation, although there have been moves afoot for a while to devolve SMD into a separate corporation rather like the Spectrum Management Agency in Australia, and this may well have happened by the time you read this.

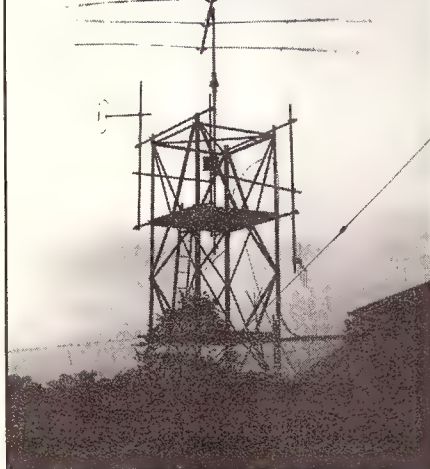
We arrived at Port Moresby airport (international airport identification code 'POM') in March 1991.

This provided some amusement, for although Papua New Guinea has been independent since 1975, the Australian influence is still very strong, and it was pointed out on more than one occasion that I was now well and truly a Pom in POM!

When we arrived we stayed in an hotel, as accommodation in Port Moresby — a rapidly-expanding city of a quarter-million people — is in very short

A POM IN P.N.G... THREE YEARS AS P29DX

By Steve Telenius-Lowe,
G4JVG/P29DX



supply. I had taken the precaution of shipping out by sea a KLM KT-34A beam, as well as Butternut HF2 and HF6V verticals, with our unaccompanied baggage, which also included a Kenwood TS-930S, a Yaesu FT-747GX and a Henry 2KD Classic linear amplifier, as well as a few household necessities, plus clothes etc.

Accommodation in 'Moresby is extremely expensive; a nice house with a reasonable-size garden and swimming pool (almost a necessity when the average temperature is 32 degrees Celsius with 95 per cent humidity!) costs the equivalent of about \$3000 per week — and that's if you can find one at all!

Our housing allowance was about \$700 per week.

After looking at several houses we eventually settled for a nice, large, airy detached house without a pool, but also without sufficient space in the garden for a beam.

People have asked me if it was because I was working for the licensing authority that I was able to get the call-sign P29DX.

The answer is no: full licensees can choose any two letters they want for their call-sign providing it has not already been allocated, and most people choose their initials.

P29SL, my own initials, had already been issued, but for some reason no-one had ever chosen P29DX, so the choice was easy! In fact call-signs are re-issued if they have lapsed for several years, so it is possible there may be a new P29DX in the future.

The baggage arrived about a week after we moved into the house and the very same day the Butternut HF6 was erected and the TS-930S and Henry 2KD set up in the spare bedroom.

Conditions back in May 1991 were still superb, and even without a beam I found I could generate a European, North American or JA pile-up virtually whenever I went on the air.

In England I had tended to spend much more time listening than transmitting, generally searching out DX stations and very rarely calling CQ.

I have been on quite a few DXpeditions, but this was the first time since 1978-79 (when I was EP2SL) that I was resident in a country rare enough to virtually guarantee a pile-up whenever I went on the air.

I had the best of both worlds: I could work a pile-up whenever I felt like it, I could chase DX myself whenever I felt like it (and most rare DX stations were delighted to be called by a P29 station through their VK or JA pile-up!), or I could ragchew whenever I wanted, knowing that the pile-up would still be there tomorrow.

When operating on a DXpedition one is always aware that you have a very limited amount of time to activate your country, so one is always attempting to give out as many QSOs as possible. When you are resident in a rare or semi-rare country, though, there is none of that pressure.

You could always spend half-an-hour trying to make a single grey-line QSO on 80 metres without feeling guilty that you are missing a short opening to a different part of the world on, say, 20 metres.

In the first few months, I tended to spend two to four hours a day on the air,



P29A

IARU CONTEST 1993 SPECIAL CALL

Stephen Telenius - Lowe

P.O. Box 7416

Boroko

Papua New Guinea

Operators Steve P29DX, Shoji P29JA and Aksie P29NAG represented the Papua New Guinea Amateur Radio Society (PNGARS) and made about 1400 QSOs. **TNX QSL**

PAPUA NEW GUINEA

Confirming QSO with:

STATION	DAY	MO	YR	UTC	FREQ	REPORT	MODE
		JUL	93			59	TWO WAY SSB

often working about 300 QSOs per day. At the weekends I especially made a point of operating on 15 metres into Europe until about 1500 or 1600z (0100 or 0200 local time).

By 1993 the band was closing much earlier than this, but back in 1991 it proved to be a very reliable path.

I found that I had soon worked 200 countries without really trying: Caribbean and even African countries that you rarely hear outside contests from one year to the next called *me* through the North American or European pile-ups. This was great stuff!

Andrew GØHSD and Don G3OZF started a regular weekly sked with me in 1991, which we kept going until I left Papua New Guinea in early 1994.

Very rarely did we miss a week, although occasionally we had to drop down to 20 metres as the MUF fell.

After about four months my thoughts turned towards the forthcoming CQ WW SSB contest.

Although I could generate a huge pile-up whenever I wanted when I was just about the only Pacific island station on the band, I was under no illusions that using just a Butternut vertical I was going to put in a record-breaking score in the CQ WW contest. I needed somewhere to put up the KT-34A beam, which was still sitting in its box downstairs.

Although the headquarters of SMD and PTC as a whole were in Port Moresby, most of my working days were spent at the monitoring station, some 20 km north-east of the city, out in the bush.

At the work location was a 38-metre high tower, supporting nine LF-HF wire receiving antennas and a rotatable VHF-UHF log-periodic.

This seemed to be a suitable location for the beam...

I received permission from my boss to use the station (which fortunately is normally unmanned over the weekend) and assembled most of the beam in the relatively cool of our house.

It took 18 hours to build the beam, the last few in sweltering heat outside the station.

Sadly, it wasn't possible to put the

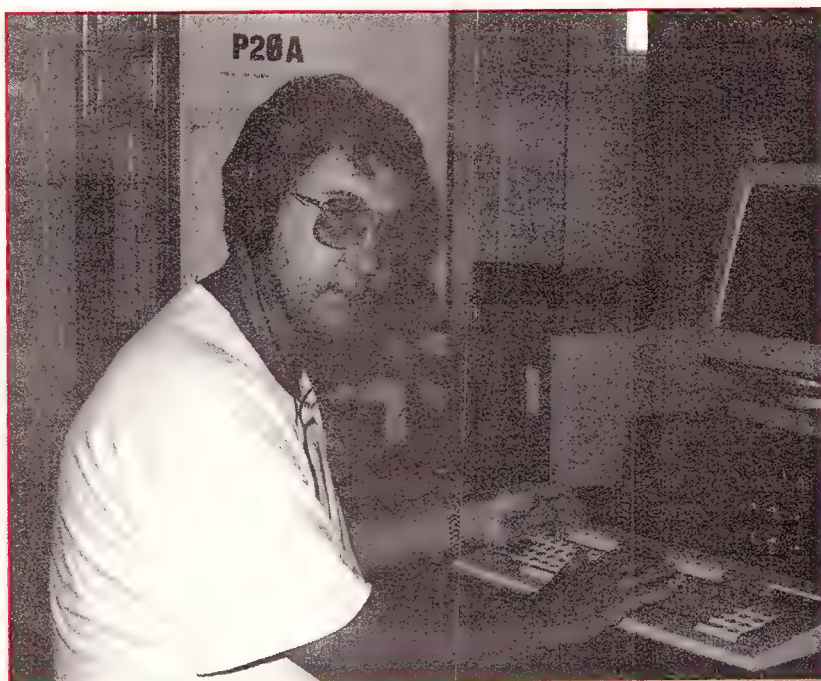
beam on the big tower, but I enlisted the help of half a dozen Papua New Guinean colleagues (price: one case of beer!) and up it went on a scaffold tower about 10 metres high.

Almost the first QSO was with G3LQP on 20 metres long path using a 'bare-foot' rig.

Roger reported that my signal varied from 59+ to unreadable when beaming away from him.

This boded well for the contest, when I would also be using the Henry 2K! On 40 and 80 metres I used sloping dipoles, and on 160 metres an inverted-V dipole.

The day of the contest finally came around and I found conditions superb on



10, 15, 20 and 40 metres.

On 80 and especially 160 metres it was a different story, though — I found it very difficult to work any stations at all other than the occasional VK or FK8 station. I worked only one European on 80 metres: OH6RF.

In all I worked over 3000 QSOs, but my score suffered through a lack of multipliers on the LF bands.

Although well short of OH1RY's record Oceania score from Vanuatu, I ended up taking the first-place single-op place for Oceania.

My experience in CQ WW taught me that Papua New Guinea is so far from any of the major areas of population that I would need much better antennas on the LF bands if I wanted to have a competitive all-band score in future contests. I tried a two-element delta loop array on 80 metres, fixed on the USA and the Caribbean.

The first evening I went on the air with this antenna I had a pile-up of LU and CE stations giving me 59 to 59+20 reports when VK3DZM — one of the strongest signals out of the eastern states of Australia — was getting 55 or 56 reports from the same stations!

I was also able to work one or two stations which he couldn't even hear, so although it was clear that propagation was favoring me and not the more southerly stations, it certainly seemed that the delta loop array was working extremely well.

I was a little surprised that it seemed to be firing towards LU and CE rather than W, so checked the direction of fire with a compass and it seemed to be correct, so I just put it down to conditions.

On 40 metres I tried a 'double quad loop' — two full-wave loops in a colinear array — which had been described in CQ, while on 160 metres I used a single delta loop, but I was never able to work more than the near Pacific on it.

The next major contest was the ARRL in March 1992, and again I made over 3000 QSOs, with WAS on 10, 15 and 20 metres, and only a few short on 40. 80 metres was still very disappointing, though, and a KH6 — being several thousand km closer to

North America than P29 — cleaned up the Oceania honors.

With just three weeks to go before the CQ WPX contest, I could not think of any way of easily improving my LF signal further.

Looking at the all-time WPX records, it looked as if the 28 MHz Oceania record could be beaten by a fairly concerted effort on that band.

From my experience in CQ WW and the ARRL contest it was obvious that I was getting out very well indeed on 10, 15 and 20 metres, and 10 metres was still in excellent shape back in March 1992, especially for those of us fortunate enough to be within the tropics (Port Moresby is about 9° south of the equator).

Because of the relatively low height of the KT-34A beam — only about 10

....

A POM IN P.N.G... THREE YEARS AS P29DX

(continued from previous page...)



metres above ground — 28 MHz would be my most competitive band.

It being the WPX contest, though, I felt a special prefix would be in order, although it has to be said that if you are trying to think of a better callsign to use in a contest than P29DX you have a hard time.

This is where it was useful to work for the licensing authority! It isn't widely known, but according to the ITU Radio Regulations, if your country's prefix is made up of a letter and a digit (such as T2, T5, S2, P4 — or P2), it is suggested the second digit for amateur stations should be either 0 or 1.

This is not a hard and fast rule, but all other classes of station such as coast stations, land mobile, ship stations etc. have all the other digits from 2-9 assigned to them, leaving 0 and 1 for amateur and experimental stations. P2ØPMS had been used for a special-event station at the Port Moresby Show a few years earlier, and Paul P29PL had been given permission to use P2ØPL in an earlier contest, so I was given permission to use P2ØA.

Two disasters struck during the WPX contest. First — and most seriously — during the night I started shivering violently, and by the Sunday morning was feeling extremely lethargic and fatigued (even more so than is normal on the second day of a 48-hour contest.)

Secondly, and in the middle of a Stateside run, my power output suddenly dropped to about 10 watts when using the linear (one watt out of the TS-930S!).

P29PL came to the rescue and brought me his spare rig, a TS-430, which got me going again, although by

this time I was feeling so ill I had no real desire to continue.

Conditions on the Saturday had been superb and I had already beaten the previous 28 MHz Oceania record by early on the second day of the contest. I therefore retired by early afternoon and the following day went to the doctor. What he told me hit me like a hammer: I had contracted a particularly nasty strain of malaria *p.falciparum* — which, he said, if I hadn't gone in for treatment could well have killed me quickly. I was given a huge dose of fansidar in the *gluteus maximus* and told to rest.

The diagnosis for the TS-930S was just as grim: the two transistors in the PA had both blown, which cost several hundred dollars to replace.

The good news was that with 2600 QSOs and a score of 5.1 million points I was indeed the new holder of the 28 MHz Oceania record.

With the way conditions have been recently I am fairly certain the record will remain unbeaten until the next sunspot cycle, but given that I operated for less than 24 hours it should be possible for anyone putting in a concerted effort to beat it when conditions improve again.

In the summer of 1992 I took all my accrued leave and borrowed a little more in order to spend 10 weeks travelling around the world.

A short visit to family and friends in England and Sweden was followed by visits to Bermuda, New Orleans (taking in the first ever New Orleans International DX Convention), Los Angeles, Hawaii, Fiji, Tonga, Niue, Western Samoa and Sydney before returning to Port Moresby.

Naturally, with such an itinerary I had to get on the air, and made a few thousand QSOs as **3D2SL**, **A35VG**, **ZK2XG**

and **5WISL**, as well as two metre FM QSOs in VP9 and W5.

In January 1993 I made a weekend trip by light aircraft to Yule Island (IOTA reference **OC-153**) as a result of numerous requests from IOTA chasers. I had operated for a couple of hours from Yule Island in September 1991 but many people had missed that very short operation.

On the return trip I was very lucky with propagation, and had huge pile-ups on both 21,260 and 14,260 kHz, working a total of about 800 stations in all.

Many of the most active amateurs in Papua New Guinea do not live in Port Moresby, but in a place called Ukarumpa, which you would be very lucky to find on a map of the country. It is about 80 km west of Goroka in the Eastern Highlands, and is the headquarters of the Summer Institute of Linguistics (SIL), an American-run missionary organisation dedicated to translating the Bible into all the indigenous languages of Papua New Guinea (over 800 at the last count.)

Several of the Ukarumpa amateurs were planning to operate the CQ WPX SSB contest with them in March 1993, and invited me and Shoiki, P29JA to join them.

Steve P29SC was on leave in USA but had kindly offered the use of his QTH for the contest. He has a monster 4-element quad for 10, 15 and 20 metres, and Pete P29CW and Dave P29DK put up a 2-element phased vertical array for 40.

I arranged for the use of the call P2ØX, and Shoji P29JA and I flew up from Moresby in a light aircraft owned by the SIL organisation with my Henry 2K as baggage.

The contest went extremely well, the



PAPUA NEW GUINEA

P29DX

Stephen Telenius - Lowe

P.O. Box 1783

Port Moresby

Papua New Guinea

IOTA OC-34 / OC-153 (Yule Island)

HIDXA 1034, G4JVG, VK9YG, RSGB PNGARS

Confirming QSO with.

☐ Pse QSL Tnx ☐

STATION	DAY	MO	YR	UTC	FREQ	REPORT	MODE
							TWO WAY

K2QFL Print

big quad and the Henry were obviously putting out an excellent signal and signals from Europeans on 15 metres in particular were very strong, with pile-ups even bigger than usual. Although one of the operators had never been in a contest before (this was indeed a baptism of fire for him!) everyone had a great time and we raked up a score of about 13 million, beating the previous Oceania multi-single record by a margin of 4 million points.

It was around this time that I really noticed that conditions were deteriorating markedly.

Although I still held my weekly sked with G30ZF, signals were now much weaker, and following the sked there were often only two or three stations calling me, compared with what seemed to be the unlimited numbers of several months earlier.

During the Easter holidays in 1993 we went to Vanuatu and I operated as YJØAVG using 100 watts to the Butternut vertical.

However, conditions were extremely poor for the full week and it proved difficult to get any runs going on any band. In particular, I did not work or even *hear* a single European station on 15 metres, which until very recently had been a highly reliable path, and it was hard to believe that just a couple of weeks earlier we had huge European pile-ups on 15 at P2ØX.

During 1993 my activity declined considerably, mainly due to the very poor conditions that were the norm for much of the year.

The deterioration in propagation between the superb conditions I experienced in 1991 and the abysmal conditions of mid-1993 was both more severe and more sudden than I had expected.

Another reason for the decline in my normal activity was that much of my radio time was devoted to preparations for the VK9MM Mellish Reef DXpedition in September that year.

For months, planning skeds with VK4CRR, VK4DHM, VK2BEX, WA4DAN, V73C and K5VT took place most weekends.

Unfortunately propagation never allowed G3WGV to participate, although he was kept in touch by fax and letter, but towards the end conditions were so poor that those of us in the Pacific area even had difficulties in working Murray WA4DAN and Vince K5VT.

One of my colleagues at the monitoring station was a young Papua New Guinean called Aksie.

He had gone as far as getting a novice amateur licence (P29NAG) some years earlier, but had let it lapse.

He had shown some interest in my contest activities, so I encouraged him to take out his licence again.

He lived close to the monitoring station, out in the bush and with plenty of space for antennas, so I asked him if I could put up my beam at his house (on the understanding that I could use it for contests, of course!)

He willingly agreed and we borrowed a TS-440S to enable him to get on to the novice segments of 21 and 28 MHz.

For the low bands we put up my Butternut HF2 with plenty of radials behind Aksie's house.

Aksie made quite a few QSOs, mainly with JA stations on 15, which was great for him as he was being sent on a radio monitoring training course in Tokyo, paid for by Japanese overseas aid.

While in Japan he attended the huge JA Ham Convention in Tokyo and met up with several of the operators he had QSOs with.

The first contest...

The first contest I did from Aksie's QTH was the IARU HF Championship in July 1993. We represented the Papua New Guinea Amateur Radio Society as a HQ station, which thus counted as a separate multiplier from other P29s. We used the P2ØA callsign again and Shoji P29JA and I shared most of the operating, while Aksie made a few QSOs with VK and JA stations during some of the quieter periods.

Although conditions were poor, we made just over 1000 QSOs and I believe Aksie especially enjoyed the experience. Incidentally, this is almost certainly the first time ever that a Papua New Guinean national had participated in an international radio contest.

Two weeks after the IARU contest was the RSGB's first-ever IOTA contest and again I used P29NAG's QTH for this event. When I started at 1200z (2200 local time) 10 and 15 metres were completely dead.

I worked about 20 stations (including V73C operating as V7A) on 20 metres before that band died too, and there was no contest activity on 40 or 80 metres.

I therefore decided to sleep through the night and got up at 0500 local only to find 20 metres buzzing with activity, and V7A some 700 QSOs ahead of me!

This was obviously a tactical error of some considerable magnitude, but since V73C was one of the Mellish Reef operators I was due to meet two months later, I was determined to show him that I was as good an operator as he was, so I operated the rest of the contest without a break, making 1384 QSOs in about 16 hours of actual operation.

I found conditions excellent after my slow start — surprising bearing in mind the poor conditions during the IARU contest two weeks before — and the pile-up was continuous until the very end of the contest, with no further slow periods at all.

ARA's Jim Smith, VK9NS, had started the contest with the intention of putting in a serious entry but, he told me later, had found conditions very poor and in the end he did not even submit a log.

I find it amazing that a geographical change of a few thousand kilometres can make such an immense difference to how conditions are perceived.

I managed to claw back 100 of the 700 QSO advantage which V7A had over me, but Ken went on to take world single operator first place and I ended up in second place, so I felt honor was satisfied.

Bill, VK4CRR has already written about the September 1993 VK9MM Mellish Reef expedition in *Amateur Radio Action*.

One reason we had decided to go at that time of year was because of the expected peak in propagation around the equinox — our decision proved to be a good one, for we were blessed with conditions far better than any of us had dared hope for.

After my return from Mellish, I concentrated more on the LF bands from my home QTH, changing the Butternut HF6 for an HF2 which I am convinced gives superior performance on 80 metres, if not on 40.

I worked a few antipodeal QSOs on 80 such as D44BC and several PY stations, but always had great problems working Europe on that band.

In the northern winter I started a regular weekend sked with G30ZF on 40 metres long path at around 0730z. I transmitted on 7293 kHz, which was an absolutely clear frequency in Europe at that time, but without Don's efforts to alert British and other European stations of my existence on that frequency I would have had very few QSOs. 40 metre DXers should be aware that it is not only USA stations which can transmit up to 7300 kHz, but many very choice DX countries too, especially in the Pacific area.

My greatest difficulty on 40 metre long-path QSOs was hearing the weak European stations through the 59+ JAs, which were on almost every available frequency below 7100 kHz.

I'm sure VK 40 metre DXers will recognise this particular problem! Of course it is under such circumstances



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A POM IN P.N.G... THREE YEARS AS P29DX

(continued from previous page...)



that a beam antenna would have made life so much easier.

Just before Christmas 1993 I had the chance to visit New Zealand for the first time, and took the opportunity to look up an old radio friend, Harry ZL2SQ.

I had last met Harry in Teheran in 1979 when he was EP2BQ, but it is one of the great things about amateur radio that although we had only kept in occasional touch in the 14 years since our last meeting, my wife and I were welcomed into the McQuillan family with open arms.

Tremendous hospitality providing us with more great memories of our time 'down under'...

Europe on 80...

Around this time the PNG National Broadcasting Commission was having some long overdue renovations, with a new 100 kW HF transmitter (operating on 9675 kHz), a 10 kW MF transmitter (on 585 kHz) and a new 112 metre-high vertical antenna being installed just down the road from my home QTH. It says a lot for the front end of the TS-930S that I could operate on any band at any time with a 100kW transmitter operating into a 9 dBi gain antenna with in line of sight of my antenna with no problems at all.

The consultant engineer overseeing the installation of the new transmitters and antennas was Greg P29VGC.

While not a keen DXer himself, he thought it would be interesting to see how well the 112-metre vertical got out on 160 metres, so one night after the MF station closed down at 1400z we took a TS-940S and TL-922 (which belonged to the NBC) along to the sta-

tion to try it out.

The results on 160 metres were very disappointing: we worked a VK2 with 59+ signals both ways, but despite dozens of CQ calls, no other QSOs resulted.

We went down to 80 metres, where we worked several VE7, W7 and W6 stations, and asked for skeds with them on 160.

Unfortunately no QSOs resulted, and back on 80m we were told that there had been three W6s calling us on 'top' band, but we could not hear them through the S9+ static level.

Around 1530z 80 metres started opening to Europe, but unfortunately we could not stay late enough for the band to open to Western Europe.

I made arrangements with Greg to try again the next week, when we could stay all night until the NBC station opened up again.

Again, no QSOs on 160 metres, despite skeds with well-equipped stations in USA, but 80 metres was good to Europe. Although I worked plenty of DL, PA, ON and F stations, I did not hear any Gs.

After returning to England, Roger G3KMA told me I had been a genuine 58 signal and there were plenty of Gs calling, but I did not hear any of them.

Again the problem was the S9+ QRN, and none of the European signals were sufficient to completely overcome the static, so it was a matter of listening between the static crashes, sometimes picking out one or two letters of a call-sign at a time.

We were using a DSP-9 digital noise filter, but I found that although it did decrease the noise level somewhat the loss of fidelity was so great that it did not improve readability of the wanted signals at all. Before having access to the 112-metre vertical I had worked just four or five Europeans on 80 metres in nearly three years of operating. A run of Europeans on 80 metres was therefore quite exciting for me, and a great way to end my activity as P29DX.

I made about 40,000 QSOs altogether, about half in contests. At the end of February 1994 I had to pack up all the gear for the long journey back to the UK.

With another move of QTH in the offing, it will be some time before I am on the air again, but when I do get myself organised I look forward to being able to work all those VK, ZL and P2 stations who were my 'locals' in Papua New Guinea once again from this side of the world.

73 to those who remember me and thanks for making a Pom welcome on the bands 'down under'.

Despite promising a guide on antennas, feedlines and the like, I think we should use this month's column to talk about the coming **Ross Hull Memorial VHF-UHF Contest**, as it commences on Boxing Day.

The annual Ross Hull event is a unique and effective way to exploit the capacities of summer tropospheric propagation. The concentration of activity, and eagerness of operators over an extended period, ensures excellent results for those participating from home or in the field.

You should take careful note of the new emphasis on the '100 best contacts per band', the emphasis on 144MHz and above, and the capacity to work a station again on the commencement of the UTC day (ie you might work a station at 8am local time and be valid for another contact within a few hours, or that evening when a new day has started in terms of UTC time).

Now to the rules, courtesy of *John Martin, VK3KWA*, who is the Ross Hull Contest Manager. I would again make the usual request that DX calling frequencies be kept clear as much as possible. And *please* send those logs in, even if you don't have a winning score. It helps to make the cross-checking easier, and a large list of logs helps to increase interest.

The **1995 VHF-UHF Field Day** will take place on January 14/15, 1995, during the Ross Hull Contest period. This should provide an extra opportunity for DX contacts.

Rules for the Field Day will be much the same as in previous years.

Rules

The WIA maintains a perpetual trophy in honor of the late Ross Hull to commemorate his pioneering achievements in the VHF-UHF field, especially the discovery and investigation of VHF tropospheric propagation.

The name of each year's contest winner is engraved on the trophy, and he or she receives an attractive wall plaque and certificate. Other certificates may also be awarded to top scorers in the various divisions of the contest. The contest is not confined to WIA members.

Duration: 0000z Monday, December 26, 1994 to 2400z Saturday, January 28, 1995. In Eastern Summer Time, that means 11am on Monday, December 26, 1994 to 11am on Sunday, January 29, 1994.

Sections: A. Multiband. B. Single band. All entrants will be scored for both Section A and Section B.

General Rules: All bands above 30 MHz may be used. Single operator only. One contact per station per band per UTC day. Crossband, repeater and

satellite contacts are not permitted. Contest exchanges should not be made on recognised DX calling frequencies. Entrants may operate from any location. All rulings of the contest manager will be accepted as final.

Contest Exchange: RS or RST numbers plus a three-digit serial number.

Scoring: Scores will be based on up to 100 contacts on each band, as nominated by the entrant. Each contact will score one point per 100 km or part thereof (ie up to 99 km: 1 point, 100 - 199 km: 2 points, etc). On six metres only, as above but a maximum of 10 points per contact is allowed.

The **band multipliers** are:

6 metres	x 1
2 metres	x 4
70 cm	x 7
23 cm	x 10
13 cm	x 13
Higher	x 16

Logs: To enable proper cross-checking, logs should cover the full contest period. The contacts nominated for scoring purposes must be clearly marked in the log, or listed in separate log extract sheets.

Despite the many reactions you get whenever you mention the word 'contest', the annual Ross Hull event is a unique and effective way to exploit the capacities of summer tropospheric propagation.

Separate logs for each band are not necessary, but common logs should if possible have a separate score column for each band.

Logs must contain the following for each contact:

- Date and UTC time.
- Station location (if operating portable).
- Callsign of station worked, band and mode.
- Location or Maidenhead locator of station worked (if not QTHR).
- Reports and serial numbers sent and received.

- Estimated distance worked and points claimed.

The contest manager reserves the right to correct distance estimates on the basis of computer calculation.

Cover sheet: Logs must be supplied with a cover sheet containing:

- Operator's callsign, name and address.
- Station location (if different from the postal address).
- A scoring table set out as the example below.
- A signed declaration that the station has been operated in accordance with the rules and spirit of the contest.

Deadline: Logs must be received by Monday, February 20, 1995. Early logs would be appreciated. Post logs to: WIA Ross Hull Contest Manager, PO Box 2175, Caulfield Junction, Vic 3161.

Disqualification: The normal rules apply. Entrants may be disqualified if there is evidence that claimed contacts were not made, or if logs are incomplete or illegible. Persistent use of DX calling frequencies for contest exchanges may also lead to disqualification.

Awards: The overall winner will be the top scorer in Section A. Awards will also be made to the top scorers on each of the following bands: 6 metres, 2 metres, 70 cm, 23 cm, 13 cm, microwaves (bands above 3 GHz).

A note on calculating distances

Absolute accuracy is not needed. All you need to know is whether the distance is above or below the nearest multiple of 100 km. An easy method is to use a compass to draw 100 km circles around your location on a map. Better estimates can be made from six-digit Maidenhead locators, using simple computer programs published in December 1990 and January 1991 *Amateur Radio* magazine. A more accurate and fully error-trapped program is available which also includes calculation of bearings and conversion between latitude/longitude and Maidenhead locators.

It is available in IBM format only from John Martin, VK3KWA (correct in the current Call Book), if you send a floppy disc (any format) in a mailing box, together with return postage.

See you next month...

SAMPLE SCORING TABLE

Band	6 m	2 m	70 cm	etc
	_____	_____	_____	_____
"100 best" score	XXXX	XXXX	XXXX	XXXX
Band Multiplier	X 1	X 4	X 7	X x
	_____	_____	_____	_____
Total	xxxxx + xxxxx + xxxxx + xxxxx = xxxxx (GRAND TOTAL)			



Propagation

East - England (short path)

28.5
24.9
21.2
18.1
14.2
10.1
7.2
3.6
1.8
0.9
MHZ !
UT 00 06 12 18 24

East - England (long path)

28.5
24.9
21.2
18.1
14.2
10.1
7.2
3.6
1.8
0.9
MHZ !
UT 00 06 12 18 24

ABOUT THESE CHARTS

The data on these pages are graphs showing forecasts for expected HF operating conditions between Australia and a number of important DX destinations. The information they contain is prepared by **IPS Radio and Space Services**, a division of the federal Department of Administration Services. IPS monitors changing radio conditions - which are affected most greatly by fairly predictable changes in solar activity - and issues reports and warnings based on that data.

Stations in the eastern half of Australia should refer to graphs on the left hand page. The data on the right hand page is calculated for stations in the western half of the continent. Of course, if your location is in the middle of the continent try reading them *both* - then make an educated guess.

The horizontal axis of each graph represents the hour of the day expressed in Universal Co-ordinated Time or UTC ("z"). The vertical axis lists specific point frequencies within reach of each HF amateur band.

The maps are easy to read. First go to the map which looks closest to the area in which you are interested. Look up from the time and across from the selected band to the point at which the two variables merge. Note which symbol - if any - appears at the intersection of the particular time and frequency combination for that area and refer to the legend (right) to find the sort of propagation most likely to apply. If the space is blank the forecast is not good - your time and frequency combination is unlikely to allow communication to the destination station.

East - Central and East Coast USA

28.5
24.9
21.2
18.1
14.2
10.1
7.2
3.6
1.8
0.9
MHZ !
UT 00 06 12 18 24

East - West Coast USA

28.5
24.9
21.2
18.1
14.2
10.1
7.2
3.6
1.8
0.9
MHZ !
UT 00 06 12 18 24

East - South America

28.5
24.9
21.2
18.1
14.2
10.1
7.2
3.6
1.8
0.9
MHZ !
UT 00 06 12 18 24

East - West Indies

28.5
24.9
21.2
18.1
14.2
10.1
7.2
3.6
1.8
0.9
MHZ !
UT 00 06 12 18 24

East - Japan

28.5
24.9
21.2
18.1
14.2
10.1
7.2
3.6
1.8
0.9
MHZ !
UT 00 06 12 18 24

East - Central Europe

28.5
24.9
21.2
18.1
14.2
10.1
7.2
3.6
1.8
0.9
MHZ !
UT 00 06 12 18 24

East - Middle East

28.5
24.9
21.2
18.1
14.2
10.1
7.2
3.6
1.8
0.9
MHZ !
UT 00 06 12 18 24

East - North Africa

28.5
24.9
21.2
18.1
14.2
10.1
7.2
3.6
1.8
0.9
MHZ !
UT 00 06 12 18 24

East - West Africa (short path)

28.5
24.9
21.2
18.1
14.2
10.1
7.2
3.6
1.8
0.9
MHZ !
UT 00 06 12 18 24

East - West Africa (long path)

28.5
24.9
21.2
18.1
14.2
10.1
7.2
3.6
1.8
0.9
MHZ !
UT 00 06 12 18 24

East - South Africa

28.5
24.9
21.2
18.1
14.2
10.1
7.2
3.6
1.8
0.9
MHZ !
UT 00 06 12 18 24

forecaster Dec 1994

LEGEND TO SYMBOLS

• Propagation is possible, but unlikely at this time and frequency on more than half the days of the month.

% This frequency/time pair should allow communications on between 50% and 90% of the days of the month.

F Your best bet: first "F" mode conditions should apply on at least 90% of days this month for the given time and frequency.

E Propagation via the "E layer" expected on up to 90% of days of month at this time and frequency.

P A fair mixture: up to 90% chance of a path using "F mode" and between 50% and 90% probability of an "E layer" path.

B A good mixture: up to 90% chance of a path using either "E layer" or mixed "F" modes.

M A good mixture of combined "F" modes - both first and second mode up to 90% of the time.

S Second "F" mode conditions should apply on at least 90% of days this month for the given time and frequency.

A High atmospheric absorption of the signal is likely - better to use a higher band. Too close to the ALF for good HF signals.

West - England (short path)

28.5	.	%%%			
24.9	.	%%%			
21.2	.	%F%			
18.1	.	%F%			
14.2	...	AA	FFFFF%		
10.1			FFFFF%		
7.2			FFFFF%		
3.6			FFFFF%		
1.8			FFFFF%		
0.9			FFFFF%		
MHZ	!	!	!	!	!
UT	00	06	12	18	24

West - England (long Path)

28.5	.				
24.9	.				
21.2	.				
18.1	.	%%%			
14.2	...	FFFFF%	AA		
10.1			FFA		
7.2					
3.6					
1.8					
0.9					
MHZ	!	!	!	!	!
UT	00	06	12	18	24

West - Central and East Coast USA

28.5	.				
24.9	.				
21.2	.				
18.1	.		%%%		
14.2	%AA		FFFFF%		
10.1			FFFFF%		
7.2			FFFFF%		
3.6			FFF		
1.8			FFF		
0.9			FFF		
MHZ	!	!	!	!	!
UT	00	06	12	18	24

Perth - West Coast USA

28.5	.				
24.9	.				
21.2	%%%				
18.1	%F%				
14.2	AA	A	FFFFF%		
10.1			FFFFF%		
7.2			FFFFF%		
3.6			FFFFF%		
1.8			FFFFF%		
0.9			FFFFF%		
MHZ	!	!	!	!	!
UT	00	06	12	18	24

West - South America

28.5	.				
24.9	.				
21.2	.				
18.1	%%%				
14.2	FFAAAAF%	FFFFFAA	A		
10.1					
7.2					
3.6					
1.8					
0.9					
MHZ	!	!	!	!	!
UT	00	06	12	18	24

West - West Indies

28.5	.				
24.9	.				
21.2	.				
18.1	%%%				
14.2	AAAAAA%		FFFFF%	AAAA	
10.1			FFFFF%		
7.2			FFF		
3.6			F		
1.8			F		
0.9			F		
MHZ	!	!	!	!	!
UT	00	06	12	18	24

West - Japan

28.5	%%%				
24.9	%%MMM%				
21.2	%%MMMMM%				
18.1	%%MMMMMS%				
14.2	SSMSMMSS%				
10.1			SSSS%		
7.2			SSSSSSSS%		
3.6			SSSSSSSSSS		
1.8			SSSSSSSSSS		
0.9			SSSSSSSSSS		
MHZ	!	!	!	!	!
UT	00	06	12	18	24

West - Central Europe

28.5	.				
24.9	.				
21.2	.				
18.1	%%%				
14.2	AA	FFFFF%			
10.1		AA	FFFFF%		
7.2		FFFFF%			
3.6		FFFFF%			
1.8		FFFFF%			
0.9		FFFFF%			
MHZ	!	!	!	!	!
UT	00	06	12	18	24

West - Middle East

28.5	.				
24.9	.				
21.2	.				
18.1	%%%				
14.2	MMSSMMSS%				
10.1	A	SMSSMMSSMMSS%			
7.2		MMSSMMSSMMSS			
3.6		MMSSMMSSMMSS			
1.8		MMSSMMSSMMSS			
0.9		MMSSMMSSMMSS			
MHZ	!	!	!	!	!
UT	00	06	12	18	24

West - North Africa

28.5	.				
24.9	.				
21.2	.				
18.1	%%%				
14.2	%%AA	AA	FFFFF%		
10.1			FFFFF%		
7.2			FFFFF%		
3.6			FFFFF%		
1.8			FFFFF%		
0.9			FFFFF%		
MHZ	!	!	!	!	!
UT	00	06	12	18	24

West - Wes Africa (short path)

28.5	.				
24.9	.				
21.2	%%%				
18.1	%%%				
14.2	F%	AA	AA	FFFFF%	
10.1				FFFFF%	
7.2				FFFFF%	
3.6				FFFFF%	
1.8				FFFFF%	
0.9				FFFFF%	
MHZ	!	!	!	!	!
UT	00	06	12	18	24

West - West Africa (long path)

28.5	.				
24.9	.				
21.2	%%%				
18.1	%%%				
14.2	A	A	FFFFF%		
10.1					
7.2					
3.6					
1.8					
0.9					
MHZ	!	!	!	!	!
UT	00	06	12	18	24

West - South Africa (short path)

28.5	.				
24.9	.				
21.2	%%%				
18.1	%%%				
14.2	SSA	AS	MMSSMMSS%		
10.1			MMSSMMSSMMSS		
7.2			MMSSMMSSMMSS		
3.6			MMSSMMSSMMSS		
1.8			MMSSMMSSMMSS		
0.9			MMSSMMSSMMSS		
MHZ	!	!	!	!	!
UT	00	06	12	18	24

IF YOU WISH TO GO TO
HEAVEN!

PLEASE RETURN YOUR
QSL

TO:
Art Brown, W3KHZ
2800 Lawson Rd.
Fallston, Md.
21047-2008 USA

**DX & BAND
REPORT**

“A minimum size ruling is *not* required in respect of DXCC countries” — that’s the word from a recent awards committee vote which was 5 to 2 against a recent DXAC recommendation that would have set a minimum size for a new DXCC country. I think most DXers expected that some sort of minimum area would be a good idea, but this is an opinion which I cannot substantiate.

The good news is that DXAC’s chairman will resubmit the recommendation on appeal. So a decision on the recent Scarborough Reef operation is still some time away, so be patient. Many VK DXers reported that they have received their BS7P QSL card. I expect Norfolk Island to be a few days later due to the mail delivery differential.

Further news is that DXAC has declared a moratorium on any petitions for DXCC status which may be affected by this issue.

As I write this, the current question is, “will you be in the CQWW contest?”. In similar vein there is a gradual build-up of what will be active over the two weekends. These are major events in DX contesting! Well, there are some goodies due up and, although it may be a bit late, I hope you have or had a ball.

Band conditions have been much improved lately with consistent openings on 10 metres which these days is like getting part of your transceiver back. Openings to JA, USA and places like Mexico, Puerto Rico are commonplace.

On 12 metres the band opens up, a few stations are worked... then silence.

Quite often a QSO disappears into oblivion, with the band on the move again a few minutes later. So it certainly pays to keep trying.

Of course, the CQWW SSB and CW weekends will open up the bands anyway. No more listening for that packet bell alert to stir one from the book reading in the shack. It will be go, go, go!

Bhutan A5

I have mentioned Bhutan from time to time as an ongoing exercise with HIDXA assisting the MOC, Thimphu to get the amateur radio service up and running

there. In a few days time, as I write this, I will be back in the Kingdom of Bhutan once again, and it is hoped that the final touches can at last be made to the project. Maybe Bhutan will soon be available to all on a regular basis.

My relationship with the Kingdom of Bhutan goes back several years now, and I have done as much as possible to help. It is quite difficult for us to understand the many problems which exist and which have now been largely overcome.

I recently asked the Ministry if it would allow Kan, JA1BK to accompany me on this visit, and its officials kindly agreed at very short notice.

As a result, I go to Bhutan with a ‘helper’ and, having known Kan for many years and met him on several occasions, I know the arrangement will work out well.

At this stage I am reluctant to promise anything as the decisions are to be made by the MOC authority in Thimphu. However, you all know that Kan and myself will do everything possible during our minimum of two weeks stay in the country to get things moving.

Wish us luck, and to the many VK/ZL stations who support the activities of HIDXA, you have our appreciation. It is planned to keep the major DX outlets (including ARA) informed via fax from Thimphu of progress (or otherwise).

Tashi Dalek (may your journey be a safe one) from Jim...

Special callsigns

There has been quite a bit of activity from stations signing with special callsigns.

The **EO50** prefix is one example. **EO50JS** was reported to be active, but it was **EO50C** which I worked on 40 metres CW. The special prefix commemorated the 50th anniversary of the liberation of the Crimea in WWII.

QSL route:

EO50JS: direct to **LY1DS**

Goran, S50C has been running another 50 year commemoration callsign, this time from Slovenia.

QSL route: **S53CAB**

Rwanda 9X

It was sad to read that **Hartmut, 9X5HG** now intends to quit Rwanda for good. He returned briefly to clear up the mess left in the recent shindig in Kigali. Hartmut was very consistent on the bands and had a great signal.

Many DXers will have used his 9X5HG card for their DXCC. Rwanda has always been a rarish African country, and Hartmut’s activities will be missed.

Hartmut now feels that his time in Africa is over. That’s a sad reflection on conditions in the country... Officially, his logs closed October 21, 1994 and he will return to Cologne as son as things are finalised.

QSL route: for all previous QSOs — to his home call **DK2SC**.

China BY/BT

The activity out of China these days is very substantial. It seems especially noticeable on 15 metres, with many ‘own call’ stations. If you worked **BT45PRC** this was an operation from the Tsinghua University.

QSL route: **BY1QH**

Gloriosa FR/G

It is reported that **FR5HG** expects to be on Gloriosa FR/G in February 1995, which will be welcome news to many. Let’s hope propagation picks up a bit more by then.

Sao Tome S9

CT1CZT has been assigned to Sao Tome for a two-year stint and has applied for an S9 license. There is usually no problems with licensing in Sao Tome.

QSL route: **CT1ADP**

Macau XX9

There has been plenty of CW activity from Macau from **XX9TSX** and **XX9TXF**. **Roger, G3SXW** and **Nigel, G3XTF** are actually on Taipa Island (AS-075).

QSL routes:

XX9TSX: **G3SXW**

XX9TXF: **G3TXF**

Seborga 1P

This area continues to be active with G, DL and I stations all signing the **/1P** designator. **DK7UY** and **DL8AAM** have both operated from Seborga. **DJ9ZB** and **DK2KV** were planning some activity soon, but this has been cancelled, I hear.

I1A/1P0 has been very active on 40 metres SSB with a great signal on the long path around 0600z.

In the view of **I2MPQ**: “It is highly unlikely that Seborga will ever count for a new DXCC country. Almost every Italian city of the last 2000 years has been ‘independent’ but we live in a modern world where Seborga pays Italian taxes, has Italian police, uses Italian postal services and all that...” We shall see.

Malagasy 5R8

Just a reminder that through most of November and early December **JA1EOM** is scheduled to be very active on all bands from Malagasy signing **5R8DP**. A good chance to get a few band QSOs...

QSL route: **JA1EOM**

Syria YK

Syria is always a tough one to catch from this side of the pond, and it is reported that **Mike, VE3UWC** is with the UN Peacekeeping Force in Syria. He has been signing **VE3UWC/4U** and has been worked on 20 metres SSB. Incidentally, these 4U operations usually count at DXCC.

QSL route: **VE3UWC**

Uganda 5X5

Paul, WF5T who did so much to open up amateur radio in Uganda, plans to return in November. He will be in the country for

at least a month so look for him signing 5X5XT.

QSL route: WF5T

Galapagos HC8

For the CQWW CW weekend in late November two stations are scheduled to be active. Both HC8N and DL5XX/HC8 hope to leave their mark with high contest totals.

QSL Routes:

HC8N: AA5BT

DL5XX/HC8: DL5XX

Belau KC6

We've still had no news so far on prefix changes since Belau became independent in early October. A number of activities are expected in coming weeks. Jim, KC6SS and Coy, KC6OK both plan to operate from Belau using their old call signs in November.

QSL route:

KC6OK: N5OK

KC6SS: WV6S

Chad TT8

Over the past years there have been many 'no count' operations from Chad. Needless to say, that always causes some disappointment in those needing this rare one. The recent operation by TT8/F5KGF is apparently no exception, though, as the operator has now confirmed he had verbal permission only.

Fact is, that CTS has temporarily suspended the issuing of TT8 licences.

Cambodia XU

XU1MF has been reported active on 17 metres SSB. I have not heard much out of this area for some time. WFWL.

QSL route: JA1JTU

Djibouti J28

Pat, J28FD is very active these days, especially on CW. I worked him the other day on 30 metres CW and he was good copy here.

QSL route:

Pat, J28FD

38, Chemin du Plateau

F-67500 Hanguenau

France

Vietnam 3W

Those of you who worked 3W4DX and 3W4VL around Dec 1990 and have had a problem with a QSL card are in luck, as RW3DX says he can help.

QSL routes: for both 3W4DX and 3W4VL, SAE and postage please:

RW3DX

PO Box 45,

Dubna,

141980 Russia.

Kuwait 9K2

Abdullah, 9K2GS is very active on 20 metres SSB on the long path time (around 0400z onwards). He usually has a very good signal into this area.

QSL route: CBA

Sri Lanka 4S7

Despite the recent problems on the island there is plenty from 4S7, Sri Lanka. Activity on 20 metres runs from 1100z onwards on the short path. The following stations were recently worked over a period of an hour or so:

Shanti, 4S7WP; Ananda, 4S7NB; and Ron 4S7RO all had great signal and all are in the Colombo area.

QSL routes:

4S7NB, 4S7RO or CBA.

WP Somaratne, 4S7WP,

11A Wijaya Road,

Kolonnawa,

Wellampitiya,

Sri Lanka.

French Guiana FY

Rich, FY5FJ was a good long path signal at 1943z on 20 metres SSB. He mentions that he has been quite active recently and has worked quite a few Pacific stations.

QSL route: IK2HTW

Cocos (Keeling) VK9C

It was nice to hear one of my old stamping grounds on the air the other evening at 1200z on 20 metres. Goh, VK9CI was surprised to hear a VK9 call him! His signal was not too good, and the QRN with my beam over Australia is really bad at the moment. All that dry weather I guess...

QSL route: JA1SDV

India VU

Worked Paran, VU2AU on 20 metres SSB at 1140z. He was very loud and his father (been a SK for a long time) was the original user of the call.

Aravind VU2EJ was also very loud when I worked him about 30 minutes later at 1218z, also on 20 metres SSB.

QSL routes:

VU2AU, VU2EJ: both CBA

Guantanamo Bay KG4

Nice to hear continued activity from this rarish DXCC country. Mike, KG4ML was very loud on 40 metres CW at 0550z the other day. KG4JO also hopes to be very active in coming weeks as his work schedule permits.

QSL routes:

KG4JO: WI2T

KG4ML: WB6VGI

Thailand HS

Met, HS3DF/1 was available on 20 metres SSB at 1200z the other evening. Met, running a moderate station, was not so loud as many of the other signals on the band. When he heard I would be in Bangkok he gave me an invitation to the club shack — help us on CQWW weekend!!! Rather nice of him, I thought...

QSL route: CBA

Cocos Island TI9

Jose, TI9JJP was very active for several days from the other Cocos Island, especially on 40 metres SSB. Lots of European QRM about, but I worked him okay. Note, on the QSL route. I was unable to copy a rather complicated address he gave me. However the route was given to me by another station, so it may be advisable to check this is correct for this operation.

QSL route: TI2AOC

Egypt SU

Mohammed, SU2MT is reported to be very active on 40 metres SSB daily around 1900 to 2000z, and he has been worked by many of the VK/ZL DXers. I have not heard him here so far, but will keep looking...

QSL route: CBA

Haiti HH

KB8CTD is currently signing HH1T and YL Darlene KB6CTC is signing HH1D — both are missionaries in the interior of the country. They are active on 20 and 40 metres SSB.

QSL route: NE8Z

Burkina Faso XT

XT2BW is back in Burkina Faso and active again for a further two months. So this looks like one more chance to get this one in the log.

QSL route: WB2YQH

Balleny Island ZL

There are conflicting rumors about an imminent operation from Balleny Island by a group of ZL operators. I have been unable to nail this one, but there was a proposal made to DXAC that Balleny Island should be a 'new one'. However, I have not heard of any DXAC vote being due and so on.

St Lucia J6

DL3KDV hopes to active from St Lucia for most of November. He will sign J6/DL3KDV.

QSL route: Home call.

So that's that for the moment, and the upswing in conditions is very welcome.

As mentioned, there have been many good HF band openings on 10 and 12 metres, for example, and 15 metres is also open for extended periods.

Low-band activity continues to be very rewarding, but time consuming.

To the many who keep me informed on the bands, by fax and by telephone, many thanks.

A special thanks is due to the following DX outlets — they keep the DXer informed.

QRZ DX, Les Bacoires DX, Long Island DX Bulletin, JA-59 Magazine, JA-DX News, RSGB DX Newsletter, DXpress, Lynx DX Bulletin, Les Bacoires DX, Long Skip, and more.

73 from Jim, VK9NS.

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ISLANDS ON THE AIR (IOTA)

By Jim Smith, VK9NS, PO Box 90, Norfolk Island, South Pacific 2899

The recent RSGB HF and IOTA convention held in the UK during October 1994 was apparently a great success, with a strong turn-out at the IOTA section of the convention. There is no doubt that the RSGB IOTA program is really taking off in a big way.

At the convention, several important additions and changes were announced by Roger, G3KMA the IOTA program director, and I will now outline the various areas:

SPONSORSHIP

Possibly the most significant announcement was the fact that **Yaesu UK Ltd** has entered into an international sponsorship arrangement with the RSGB IOTA program. There are several immediate advantages to IOTA, not the least of which is increased publicity and a measure of financial stability. Yaesu has agreed to enclose literature about the IOTA program with every new rig sold in the UK.

It also follows that Yaesu must be happy with the arrangement — IOTA is very well known. In addition, Yaesu promises a significant annual contribution to the costs of running the IOTA program.

Further benefits to IOTA include assistance with a full portable Yaesu station on loan to IOTA, assistance with QSL cards, and so on. Such arrangements are, of course, of great benefit to the IOTA program and certainly the financial assistance will be very welcome. Running such programs can eat into a small financial base very quickly and Roger has often said that the program runs on a shoe-string budget. I have no reason to doubt him.

THE YEAR 2000

From January 1, 1995 increases in administrative charges made to cover QSL checking, IOTA certificates and IOTA updates come into effect. So the obvious question must be asked "Why impose cost increases in view of Yaesu sponsorship?"

The answer lies in the vision being applied to the IOTA program to carry it through the next five years. It says a lot for the committee which drives IOTA — it is looking ahead, expanding IOTA, making improvements looking at funding and so on. No one can accuse IOTA of being stagnant and I certainly give the committee my unequalled support.

The next major review of IOTA in the island sense is in five years time. This also makes sense as it stabilises the available island count in real terms. There is no 'lurching' from one island decision to another and to me this also makes sense.

ISLAND CHANGES

In June 1994 there was a small review carried out to look at certain un-numbered island groups in the IOTA Directory. Many of these changes were covered in a previous IOTA column.

The new October 1995 IOTA Directory now incorporates these and other changes, so bringing it completely up to date and valid for the next five years. More on the Directory later, but it was on sale at the convention and is now available to all. The self-imposed IOTA ceiling of 1175 island groups is retained and the next review is now five years away.

So the basic changes were:

- a) In all, 19 new groups were added.
- b) Nine groups had their coverage amended.
- c) 13 'barren' groups were withdrawn.
- d) Two further groups were deleted.

Areas involved are the coastal groups of **Iceland**, **Sardinia**, **Corsica**, **Honshu** (Japan), **Newfoundland**, and the North and South islands of **New Zealand**. In addition, an FS island called **Tintamarre Island** has been recognised as a separate island **NA-199**.

There has been a major reorganisation of the **Brazilian** island groups.

A Portuguese request that **Pessegueiro Island** (which was part of EU-145) be counted separate was agreed to.

Scarborough Reef will count (as AS-116).

A new **UAE** group has been added.

In Australia, **Houtman Abrolhos** (VK6) is recognised.

In Papua New Guinea, **Pocklington Reef** (P29) has been added.

In the Philippines, **Calagua Island** (DU4) is also recognised.

As these 'new ones' are activated they will qualify for an IOTA number. So one can see that the IOTA Committee has not been idle.

IOTA COMMITTEE

Note was made of the work done by **Dewitt, W4BAA** as an overseas member and it was interesting to read that the US participation in IOTA now exceeds that of the UK and Italy. There is no doubt that there is tremendous interest in IOTA by the Italian radio amateurs.

NB. As an aside, I can think of no valid reason why VK, ZL and JA participation should not take off. We have everything going for us with dozens of islands in our back yard.

CHECK POINTS

Nearer to home, it was officially announced at the convention that **HIDXA**, Norfolk Island, is now a recognised check point for the Pacific Rim. This excludes US Pacific islands since they already deal with the USA via internal US mail. For the time being, **HIDXA** will also be a check point for Japanese card checking, however it is expected that in due course a Japanese point will be established for JA applicants.

In the next issue I will outline requirements on submitting QSL cards to Norfolk Island. Most submissions will be made on computer disk accompanied by the QSL cards. When checking is completed this disk will be sent to the UK, totals will then be finalised and award made etc. All totals will, of course, end up in the UK IOTA database. I hope to have the basics of this program in place in coming weeks and I will also cover costs of the awards and so on.

DIRECTORY

The new October 1994 IOTA Directory is available via **HIDXA** with immediate effect. On receipt of your order (and payment) **HIDXA** faxes G3KMA and your order is sent by Air Mail same day.

It is important to note that without the IOTA Directory and the IOTA number allocated on purchase that one is not able to apply for IOTA awards. I strongly recommend that you buy one — it is the complete 'eye opener' to IOTA and also makes you a part of the program.

SHORT FORM LISTING

The short form listing is 22 pages of current island numbers by continental areas. The name of the most common island is listed — not all islands which count for a number... hence the title 'short form listing.'

It is an invaluable aid if you keep a record of what you have found in your log book, so you can search through what you have worked and identify what you need. But my computer never seems to be on at the precise moment that I need it — do I need OC-005 or whatever? So I designed this listing, since the written record is often very handy and is the reason I keep a written log in addition to one on the computer. In the case of the **HIDXA** short form list, it is available here on Norfolk Island and will also be mailed the same day as an order is placed.

IOTA Directory: £7 sterling or equivalent in Dollars or Yen (includes air mail postage from UK).

Short form list: £4 sterling or equivalent in Dollars or Yen (includes air mail postage).

Directory plus: £10 sterling or equivalent in Dollars or Yen (includes directory and short form list, both by air mail postage).

Order direct from **HIDXA**, PO Box 90, Norfolk Island, Australia 2899. Full postal address and payment are required with your order.

There is still quite a bit of information on award applications, method of sending cards to Norfolk Island for checking, costs of awards and so on. This will have to wait until the next issue due to a shortage of space. For the same reason the islands worked over the last few weeks are also omitted.

Happy island hunting from Jim, VK9NS.

PS The new directory is very nice and printed on art paper with a nice color cover.

STOLEN EQUIPMENT

Rudi Breznic of Emtronics had a bad day at Surfers Paradise following the Gold Coast Hamfest on 5 November. His vehicle was broken into and the following comprehensive list of equipment was stolen. Now this isn't the sort of thing you can walk into a pub with and ask, "can you use an SWR Analyser?", so it's going to be difficult to dispose of... Please keep both eyes open and ears finely tuned for any "bargains" which appear in your area and contact your local police if you hear of any of the following being offered around the traps.

2 x TET-Emtron High Frequency Beam Antennas, model TE-33		1 x Microphone, handheld, Kenwood model MC44s	
1 x AEA Antenna Analyser model SWR-121	s/n 1118	1 x Desk Microphone, JRC model NVT-56	
1 x AEA Digital Signal Processor model DSP-1232	s/n 0179	1 x Box of coaxial seals containing 36 rolls	
1 x AEA Packet Modem model PK-96	s/n 0173	1 x Speaker, mobile, Kenwood SP-140	
1 x Software Programme AEA "PC Packratt for Windows"		1 x Antenna Tuner, manual, Emtron EAT 1000	s/n S/N0078
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2 x AEA Multi-mode Modems model PK-232	s/n MO5996/MO5997	2 x " " , Emtron EPS-30	s/n 0390/397
2 x AEA Packet Modems model PK-88	s/n MO3509/MO03181	1 x " " , Emtron EPS-30V	s/n 0391
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1 x SGC Auto Antenna Unit - SG-230 Smartuner	s/n 65821639	1 x Power/SWR Bridge, Emtron model EP-1	s/n 0153
1 x Receiver, Lowe, Model HF-150	s/n 143808	1 x Broadband Amplifier, Datong model RFA	
1 x Receiver, handheld, AOR model AR8000	s/n 012233	1 x VLF Converter, Datong model VLF	
1 x Rotator, Kenpro model KR-400		1 x Lunar pre-amplifier, 2 metre	s/n 326301
1 x Rotator, Kenpro model KR-1000		1 x Morse Key, Himound model HK-702	
3 x Rotator, Clamp model KS-038		1 x " " " " HK-706	
1 x Magnetic Balun, RF Systems model MLB		3 x " " " " HK-710	
2 x Transceiver, handheld,		1 x Morse Oscillator, model CXX-1	
Standard dual band model C558	s/n 290284/—	1 x Balun, model EB-11 1:1 Balun	
1 x Transceiver, mobile, Standard 2 Metre		1 x " " EB-11c, coaxial Balun	
model C1208D	s/n E010037	1 x " " W2-AOU 1:1 Balun	
1 x Transceiver, handheld, Kenwood TH-28		1 x Dummy Load, 15w model Revex L-20	
1 x Wall Battery Charger, Standard model CWC150k inc. with C558		1 x " " " " Revex L-20N	
3 x Speaker Microphone, Standard model CMP-115		1 x Coaxial Relay, Tohtsu model CX-230	
1 x Standard Service Manual for model C168/168A		1 x Power Meter, handheld, Welz TP-05X	
9 x Coaxial Switch, 2 position, UHF connectors, model CX-201		1 x Coaxial Coupler, Welz CC-30N	
3 x " " " " "N" connectors, model CX-201N		1 x Dual Battery Charger, Kenpro KCS100	
5 x " " " " 4 position, UHF connectors, model CX-401		1 x Diamond Lightning Arrester for Antenna, model CA-23R	
2 x " " " " "N" connectors, model CX-401N		1 x Microphone Adapter, Kenwood MJ-46	
4 x Antenna Tuner, manual, model Emtron EAT300a		1 x " " " " MJ-68	
s/n 0736,0731,0733,0734		1 x " " " " MJ-64	
1 x Desk Microphone, Kenwood model MC-60A		1 x " " " " MJ-84	
2 x Microphone leads, Kenwood PG-4F		2 x Antenna Demonstration Kits	

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At last! It's here!! JVFX 7.0!!!

In Amateur Radio Action, we've seen and reviewed quite a few versions of JVFX, arguably the best-known bit of software for amateur slow-scan television (SSTV) enthusiasts. Now we've got JVFX 7.0, the latest version which sports all the features we've come to expect of JVFX — and much, much more.

Here is a brief summary of changes to JVFX in Version 7.0. These are listed in the NEWS.DOC document included in the JVFX 7.0 ZIP file.

- VESA 1.2 display driver for 32k and 64k colors included;
- Store and load color pictures as 24-bit uncompressed TIFFs; color FAX or SSTV in true color quality (up to 65,536 colors can be displayed in JVFX);
- Direct loading of JPG (JFIF or, more accurately J-PEG, a highly-compressed form of EPS or encapsulated Postscript file) picture files on 80386 or better computers (this will help to save *lots* of disk space);
- Direct switching between FAX and SSTV without having to return to the main menu;
- Quick-TX fast-transmit option from FAX or SSTV reception with picture selection from a 'thumbnail catalogue';
- Replay function for SSTV;
- Test tone audio generator for frequently-used tones;
- Spectrum display for SSTV;
- Transmits and receives/evaluates VIS-codes in SSTV;
- Menu-driven mode selection when receiving FAX; and
- Full grey-level support when using the 'serial audio' option for transmit operation. Unlike former versions, 64 grey levels (or 262,000 colors) can be transmitted if the audio is generated on the

RS-232 TxD pin.

Here and There acquired its version of JVFX as a ZIP file, which was easily unzipped using PKUNZIP.

In the software package comes the JVFX program itself, plus quite a few document files and some GIF (the Compuserve *Graphics Interchange Format* protocol) images. The documents contain the instruction manual, in English and German, and details of a fully-featured interface to provide a link between the computer and the transceiver.

The GIF images contain the layout for a printed circuit board for the interface. Luckily, as with earlier versions of JVFX, a simple interface built around a 741 op-amp chip and a handful of other components will suffice.

Starting JVFX for the first time produces the configuration screen. Here the first-time user often gets a bit confused. Help is usually at hand, however, on 14.230 MHz, the international SSTV frequency on 20 metres. The trick at this stage is to get the interface set up correctly on the receive side first — the simple 741 interface uses the COMPARTOR setting, while more sophisticated interfaces often use a conventional serial port.

Beware — the COM port setting is not identified as COM1 or COM2; it is referred to instead by a combination of interrupt and hex address.

A better way to go, I believe, would be to provide the standard setup alternatives, identified as COM1 and COM2, then allow further customisation — but only if required. To check and identify the addresses and interrupts for the COM ports on your computer, try a utility such as MSD, the diagnostics program which comes as part of later version of MS-DOS.

The configuration screen is used to set up the video mode, too. I use a VESA emulation for my monitor, which involves running a program *before* running JVFX.

This emulation program came on a utilities diskette supplied with the computer and monitor. I then select a VESA video mode on the configuration screen of JVFX. The exact details may be different for your computer and so a little experimentation is needed.

To check your set-up, accept the configuration using CTRL-ENTER (ie hold the CONTROL or CTRL key down and press ENTER). Then choose T from the main menu to test the video mode. A correct setting will display a grey scale, a white circle and, most importantly, color bars in the centre of the screen.

Assuming this is all okay, we can now proceed to the SSTV screen by pressing S from the main menu.

Since I spend most of my time on slow-scan rather than on the fax or satellite APT (automatic picture transmission) modes, this is the section of JVFX which will get most coverage here. Apologies to devotees of other modes — perhaps one day I'll spend some time getting to know the other parts of JVFX 7.0...

One of the main additions in this latest version of JVFX is apparent on the SSTV screen.

There was a dancing asterisk on earlier versions, which indicated the presence of an input to the comparator and the state of synchronisation during picture reception.

That has gone, replaced by two displays. The one on the left looks like a trident, or three-pronged fork. The length of the prongs changes continuously when a signal or noise arrives at the input.

During reception, a correctly tuned signal will display the central prong as the longest, while the other two shrink to a very short length.

Tuning the receiver from side to side of the main frequency changes the relative lengths, so the trident provides a very sensitive tuning meter.

The right-hand part of the display gives a snapshot of the signal arriving at the input, shown as an amplitude display.

The content of each line can be seen briefly, before it is replaced by the next sweep. This indicator, I find, is not particularly useful — perhaps I'm missing something here — but the trident tuning indicator is quite valuable in matching frequency with the amateur at the other end. Under the indicators is a section which displays the VIS code.

This is included at the start of each picture and identifies which SSTV mode is being used.



This means that JVFAX can be left unattended to capture pictures off-air. As long as the signal strength is good and the start of the picture is captured, JVFAX 7.0 will identify the code and set itself automatically to the correct mode.

More modes are available in JVFAX 7.0 than in earlier versions. Notably, a ROBOT mode is included. This opens up the possibility of exchanging pictures with the many amateurs who use this mode and previously could not work with JVFAX users.

The SSTV mode in operation on start-up can be preset in the configuration, as before, but a glitch in earlier versions has been corrected so that ANY mode can be selected as the start-up mode.

From the SSTV receive screen, a single keypress (F9) gets you to the transmit side of things. A neat feature of JVFAX 7.0 is its 'thumbnail' screen, which can be set up just the way you want it, with a swag of your favorite images. Initially blank, this screen can be edited at any time, and the software takes a snapshot of any image to be included. These snapshots are stored away in a separate file, so as soon as JVFAX is started, the reduced size versions of the pictures are available.

Once an image is selected from the 'thumbnail' screen, it is loaded as normal. I have noticed a real range of loading times here; many of my images were found on CD-ROM collections and seem to have been stored in formats which differ slightly, even though they all identify themselves as GIF files. Messages such as 'De-interlacing image — please wait' appear for some pictures, but not for others.

The trick here seems to be to convert everything to TIFF or JPEG format, as these pictures take up the least amount of disk space. JVFAX 7.0 will read TIFF and JPEG files as easily as GIF files.

The other notable feature of JVFAX 7.0, but one which I have not yet heard used, is the set of test tones which the program can generate. One problem with SSTV is that if the transmitter and receiver are not *exactly* on the same frequency, problems can arise. Usually this means that the start tone or VIS code is missed and so reception does not take place automatically.

When the shack is attended, this

is not a problem; a manual start is fine and only means missing a line or two of the grey scale at the start.

For unattended operation, however, a good frequency match is absolutely essential. Perhaps a regular exchange of standard frequency tones might help. Some stations are consistently above or below mine in frequency, and it's probable, of course that my frequency is slightly out. At least using the test tones would give me an idea about whether I'm too high or too low and by how much. Just a thought...

As stated at the outset, our look at JVFAX 7.0 concentrates on the SSTV side of things. This, however, is a one part of a whole swag of reception modes the program can handle.

The reception, for example, of weather fax images transmitted by the Bureau of Meteorology and its equivalent in other countries is a cinch. The program waits for the start signal and sets the whole thing going automatically. At the end, the image is saved and the program gets ready for the next one.

If a hard disk full of images does not fill you with glee, try the date/time-driven mode of reception.

Using the computer's internal clock, the program can be set up to capture images at certain times of day or night. This is useful for satellite image reception, too, when grabbing pictures from polar-orbiting spacecraft.

These birds do not transmit a start signal, since they are continuously transmitting line after line of an infinitely long image!

JVFAX 7.0 can handle image reception from geostationary satellites, too. This is a harder one to test out, since the receiver and antenna requirements are not as straightforward as those for the polar orbiters.

One day, a box of goodies may arrive in the post from an altruistic supplier, but until then...

The program will support fax transmission as well as reception. I have never had much joy with this mode, since there seem to be more variables working against getting a decent image. I know, however, that there are many fax fans out there, so the mode certainly works.

JVFAX has its *own* fax mode, too, called **JV-COLOR**. This was included as a way of producing color fax images without using the conventional method of transmitting each picture three times (once for each of the primary colors), then combining them at the end.

JV-COLOR transmits or receives three lines of data for each screen line. These are then superimposed using a

dithering technique to produce a high-resolution color image. Since the transmission time for this mode would be three times as long as for a black and white image, other parameters have been adjusted from their normal fax values. This means that JV-COLOR images take about 1.3 times as long to come in as normal fax images.

Other refinements which are welcomed by the growing ranks of JVFAX users include:

- a much improved file management system, which helps to keep in order the dozens of images we tend to accumulate;
- a program launcher, which allows, for example, a graphics format conversion utility to be launched from within JVFAX so that a range of formats can be loaded and transmitted; and
- improved zoom facilities, allowing part of a picture to be enlarged, saved as a new image and transmitted.

So that's a quick view of JVFAX 7.0 — an excellent program, maintaining the standard we have come to expect of its author, Eberhard Backeshoff, DK8JV (hence the name JVFAX).

JVFAX 7.0 is generally available on bulletin boards now and no doubt there are Internet sites carrying the program. Have fun with JVFAX 7.0 — it really is excellent!

THE CONTINUOUS TRAVELLING WAVE ANTENNA REVISITED...

The discussion of continuous travelling antennas a month or two ago in *Here and There* has generated quite a bit of interest. First, a few lines from **Geoff, VK8NGP**, who lives in Casuarina, NT. Geoff wrote to *Here and There* on behalf of a group of Darwin amateurs who are a bit short of space for antennas (aren't we all) and saw potential in the CTW antennas for their particular location.

Geoff writes, "I live in Darwin, and there quite a few amateurs here who live in flats and have very limited room for beams and long-wire antennas. After reading your article, I thought the CTW would be just what they need to be able to enjoy their radio hobby, given their space restrictions.

"Could you fill me in with a few pointers so we can start to make some of these antennas for the flat dwellers? Pipe length? Pipe size? Wire size? I noticed there were no details of the balun in your article. As most of us are novices, we have to ask to make sure that we are doing it right.

"I hope you can help us in this matter so we can get on with our hobby. I find your articles in *Amateur Radio Action*

very interesting and we all learn by them. Looking forward to hearing from you — all information will be gratefully received."

Well, Geoff, thank you for your letter. Amateur Radio Action is *always* happy to hear from interested readers. The first point to make is that the balun in the CTW vertical discussed last time is a commercially-made unit, from Black Products Engineering in Geebung, Qld. I bought it quite a few years ago now for the amateur radio station at Mentone Girls' Grammar School (where I work), not so much because of shortage of space but because a low-profile antenna was required.

I had to dig back into an issue of ARA (October 1988) for details of the Black company. I rang the number given in ARA and found that Black is still operating in the same location. John Mullins at Black told me that two CTW antennas are made. They are the vertical, for which you supply your own pipe, and the inverted-V dipole, a balun with coaxial cable attached for the two arms of the dipole.

John kindly offered to send an inverted-V down for *Here and There* to evaluate, so watch this space for our comments. So, Geoff and friends in VK8, *Here and There* suggests that you contact Black in Geebung on (07) 265 3368 for more information about the CTW antennas. The alternative is to build your own but, as the next letter shows, that may not be all that easy!!

This second letter was from **Jim, VK2BO** in Goulburn, NSW, who wrote a fascinating account of steps along the way in the development of the Black CTW antennas. I rang Jim and got his permission to quote from his mammoth letter, so many thanks for writing, Jim and here goes...

Jim writes, "I read with interest your article in ARA and your plea for other users of the CTW to come forth. Back in early 1984, I purchased a CTW antenna from Black Antennæ in Brisbane. It consisted of a matching unit with 53 ft of RG-58 coax aside attached to the unit (Jim is referring to the inverted-V to be reviewed here soon. pb). This was for use as an all-band dipole. I raised this to an outrigger for TV aerials which was attached to my metal tower at a height of 45 ft.

"Results were fairly good using the dipole in an inverted-V configuration with the ends at about 25 ft from the ground. I worked into Melbourne and various parts of VK2 on 160 metres but 80 was a disaster. 20 metres was excellent — an SWR of 1:1, a couple of S-points up on a dipole but at least two S-points

down on the 3-element tri-band Yagi up at 55 ft; however, I was able to work DX in all continents.

"Late in 1984, I contacted **Clive Cooke, VK4CC**, who developed and patented the Black CTW antenna. He was a very active amateur, having been an observer in the RAAF with 30 Squadron. Postwar, Clive became a PMG telegraphist, then passed his 1st Class Wireless Op's exam. After 12 months down at Mawson, he became an RI and finally 2-I-C of the Queensland Radio Branch, a very high-power radio bod and a fine CW operator.

"I did a lot of tests with Clive using various configurations of the CTW; we had a weekly sked on 30 or 40 metres, often two or three times a week if Clive wanted to try something different. He had to use a vertical for many years because he lived in a mobile home at a caravan park.

"The major point of concern was why my CTW would not work properly on 80 metres. I used it at my our beach house and it was perfect... but at home NBG! At last we found my *tower* was resonant at about 3600 kHz and we assumed that was the fault.

"While running tests with Clive, I had a contact with Theo, who conducted the VK4WI broadcasts on Sundays, using either 40 or 20 metres with a CTW vertical. (A letter from Theo, VK4MU is featured in the advertisement I found for Black in ARA, October 1988!! pb) This was self-supporting, I believe, 41 ft high and made of 3" galvanised tin water pipe.

This was similar to the one Clive used, with the second coax lead from the matching unit — all 41 ft of it — spread across the lawn. Clive's vertical was 33 ft, made from 1.5" down to 0.75" aluminium tubing.

"A variation of the dipole was tried at my beach house; this was a single section W8JK, with spacing of 12 ft. The only reason for this spacing was that happened to be the length of the only light timber on hand! Results were very interesting. It showed directivity on 40, 30, 20 and 15 metres, and was two to three S-points up on the vertical and at least three S-points up on my 40 and 20 metre dipole.

"This gave Clive ideas about making an all-band beam, and he was working on this at the time of his death in February 1993.

"One variation I used with the inverted-V dipole for 160 metres was simple and very effective. I added 66 ft of hook-up wire to each of the coax 53 ft lengths and hooked it over garden stakes around the fence. This gave one W con-

tact and several ZLs without detracting from the other bands.

"Regarding Black Products... last time I contacted Clive in January 1993, John (Mullins) was still operating the antenna side but his main business was on the engineering side.

"From my own point of view, both the vertical and the dipole would be excellent for portable field days and the like. Sure, it was a compromise and may be slightly down on the dipole and obviously down on the beam, but to be able to switch from band to band without an ATU was good. Incidentally, a good article on the CTW appears in the **Antenna Book 4** from ARA."

Many thanks, Jim, for your background on the CTW antenna. Your stories about experiments in antenna design are, I believe, in the true spirit of amateur radio. Clive's death clearly leaves a gap in the ranks which will be hard to fill.

So there we are — a bit of background on the CTW antenna and a slice of amateur radio history. It was good to hear from Geoff and Jim. Remember, ARA takes great delight in receiving and responding to letters from readers. Hint, hint!!

Cheers and 73s from Paul, VK3DBP.

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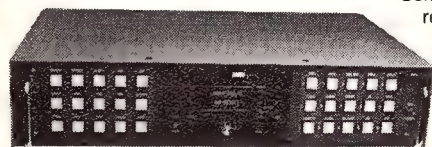
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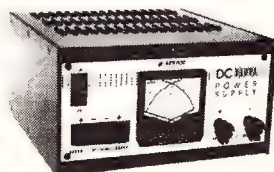
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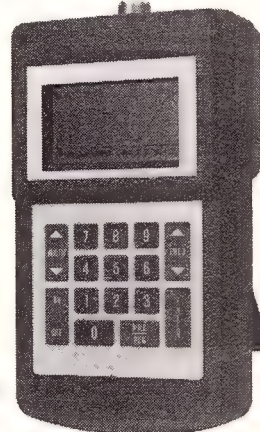
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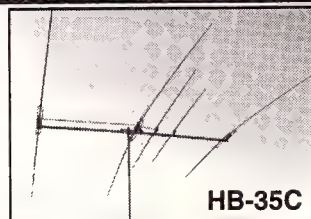
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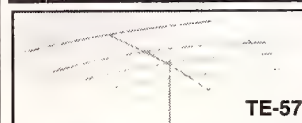
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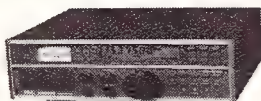
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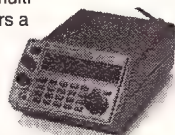
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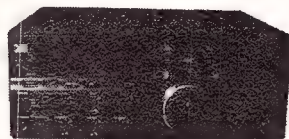
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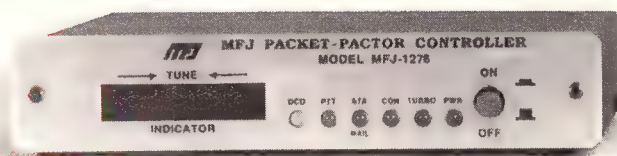
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DX UPDATE WHAT'S HAPPENING OUT THERE?

The following information was obtained from a number of sources including the Shortwave Possums BBS with "on board" credit to OPDX/BARF8Ø (Ohio/Penn DX Bulletin) with thanks to the ARRL, Northern Ohio Amateur Radio Society, Northern Ohio DX Association, Ohio/Penn PacketCluster Network, K4CEF & Southeastern Cluster Group, DJ5JH, DJOWQ, GOGWA, Z32GX, KN4F, AH6MM, KQ8M, KB8NW, KL7Q and WB9OTX. It has been edited to omit specific USA only interest.

ARA wants to supply the best DX information available

(as we believe we already do thanks to Jim Smith, VK9NS).

We would welcome regular input from VK and ZL stations, particularly from net controllers on a basis of heard/worked.

Please FAX Len Shaw (VK3ALS) on (03) 775 2575 (business hours) to have your info included in this section.

C6A BAHAMAS

Walt/G3NYY, Tim/G4VXE and Dave/WG3I will be active from Nassau, New Providence Island between December 10 and December 18, 1994. Operation will be on 160-10m including the WARC bands and will be mainly on CW, with some SSB. Calls will be C6A/home call. QSL via home call, direct or via bureau.

ET ETHIOPIA

ET3BT has been showing up on the 14226 DX Net almost every day. Look for ET3BT between 1800 and 2230z.

FO FRENCH POLYNESIA

John, K1VWL, will be active from Moorea Island (IOTA OC-046), November 22nd through December 3rd. There was no mention of what his call sign will be, but he plans to be active in the CQWW DX CW Contest (Nov. 26-27). Outside the contest, he plans to be active on 1832, 3523, 7023 and 10103 kHz. QSL via his CBA.

SV/A, MT. ATHOS

The Tokyo Packet Cluster reports Monk Apollo, SV2ASP/A seems to be pretty active on RTTY.

They also report his signal was not very strong but fair via the long path. Look for him around 14083 kHz between 7000 and 7030z.

VP8CQJ FALKLAND ISLANDS

Jon/G8XFT will be active as VP8CQJ from Mt. Kent from October 18th until approximately February 20, 1995.

Jon has now supplied the following QSL route for VP8CQJ operation: Jon Carp (PLEASE NOTE: Jon - NOT John), 9 Hawthorn Road, Gatley, SK8 4LX UK.

Jon requests cards be sent DIRECT ONLY as no envelopes will be lodged with a bureau. Cards submitted without a green stamp or IRCs will be answered via the bureau.

3DA SWAZILAND

Adam, SP2JYX, is currently signing 3DA/SP2JYX and has been quite active on 15 and 20 meters, mainly SSB. His length of stay is unknown at this time. QSL via CBA.

NEW QSL MANAGER

Adam, N7VEW, will now handle cards for 5V7MD, Dave Moody in Togo and Randy, TJ1JR in Cameroon. Adam has announced the following skeds: Wednesdays, 2230z on 14165 kHz with TJ1JR and Thursdays, 2200z on 14165 kHz with 5V7MD.

After the sked, usually 5V7MD or TJ1JR will stick around or move up the band to work some stations.

QSL TJ1JR or 5V7MD, to N7VEW 1994 CBA or Adam J. Boettiger, 6911 Naches Heights Rd., Yakima, WA 98908 with an SASE.

Please no bureau cards. Both stations are missionaries and will be there for a few years.

HS THAILAND

Reiner, DL2VK, will be in Nakhon Phanom for about 6 months. He will be signing HS0/DL2VK and will operate mainly on CW, but may also be active on Packet, AMTOR, Pactor and SSB. He did not mention on what bands he will be active.

NEW QSL ROUTE FOR 5W1GC

5W1GC's new QSL route is KE5GC via bureau or Cliff Luxion, P.O. Box 1808, Aurora, IL 60507. Cliff has been heard on 3508 kHz at 1115z, 14010 kHz at 0230z, 18070 kHz at 1915z, 21305 kHz at 2300z, 21027 kHz at 220z and 28480 kHz at 0045z.

SPECIAL "VE" PREFIXES

VE stations are currently using the following prefixes in commemoration of the UN's "International Year of the Family": Look for VB, XG, XO and XN.

QSL CORRECTION

The QSL information for the DXpedition to Revillagigedos, XF4M, is: AA6BB, Gerald D. Branson, 93787 Dorsey Lane Junction City, OR. 97448. (Not JH1AST as reported earlier.)

ST0 SOUTHERN SUDAN

John, PA3CXC, is once again active as

Compiled by Len Shaw, VK3ALS
PO Box 622, Mount Eliza 3930

PA3CXC/ST0. This trip it seems that he is concentrating mostly on CW, the WARC bands and 40 meters (few spots on 15 meters). Check around 18075 kHz between 1800 and 2200z, 7005 kHz around 0315z and 21020 kHz after 2200z. His length of stay is unknown at this time. QSL via his homecall.

160 METERS

Preston, N6SS, reports that VQ9SS and VQ9QM should now be active again on this band. Also, VQ9SS plans to be an entry in the CQWW CW Contest on 160 meters and the ARRL 160 Meter Contest.

A3 TONGA

Paul, KK6H, returns as A35RK from November 24th until February 7, 1995. He will be active from Tongatapu Island, (OC-049). Paul will emphasize 160-30 meters CW and he will be an entry in the following contests: ARRL 160 Meter (CW only) and CQWW-CW (160 meters).

QSL via KK6H or via W6 bureau.

A5 BHUTAN

Jim/VK9NS and Kan/JA1BK were in Thimphu last week trying to work out details for a possible future DXpedition from A5.

Reports from G4DYO, who received a fax from VK9NS, stated that Jim says 27 QSOs were made with JA under poor band conditions in the presence of the Deputy Minister of Communications and his staff. Two Bhutanese ops made several QSOs. A51MOC is now the call of the Ministry of Communications. Jim finished his message saying "be patient". QSL via JA1HGY.

ANTARCTICA

Nigel, VP8CMR, has just arrived at Halley Base and plans to be very active on some of the bands. He has been worked on 14260 kHz after 2230z. He plans on being active on 17 meters from 1500 to 1900z.

Nigel will be at the base until February 1995 (plenty of time to work him). His QSL info is: Nigel, Halley Base, BAS, Via Port Stanley, Falkland Islands.

BV TAIWAN

Tom, WB8IUX, has received permission to operate as BV/WB4IUX.

The dates for his trip still are not set as of yet, but if he is not active later this month it will be early in December. His plans for this trip is to only operate on 80 and 40 meter CW (To help the deserving with this zone and country). He may get on 20 SSB for a short period, just to spread the word that he is operational and to provide operating schedule information.

C56/G0MRF QSL INFO

Many have been asking for the address for this operation because G0MRF is not in the current callbooks (but it should make it in the 1995 callbook edition). For direct cards send to G8PDW and bureau cards should still go to G0MRF.

World VHF News

In the August *Five Nine* column written by JA1VOK, there are stark contrasts between the thousands of multi-hop E communications across the Atlantic and the lack of them across the Pacific during June/July.

The only countries worked in Japan were BV, HL9, VR2, XX9, BY and UAØ. RKØCWC and RZØCZZ worked all Japanese call areas during five days in June, and made over 600 individual contacts. Unfortunately no other DX was worked.

The latest recorded DX in Japan saw VK contacts absent for the first time in over five years since Cycle 22 began.

The only stations logged in July were BVØARL/1, BV6BU, BV2KW, DX1HB/B, BV2FG, JT1CO, BV2FI and BV2KW.

Graham VR2IH (ex VS6YHT) advised by packet that he worked JH7SCY/7 in Fukushima (QM07) at 59+ on Extended Es and set a new Asian DX record of 3020 km.

European report from DL

Max, DL4MDQ (packet address @ DBØKCP.#BAY.DEU.EU) reports that, as expected, the Sporadic E season faded out in August, and only a few short openings across Europe could be observed.

From DL worked countries included OH, 9H, SV, SV9 and a few more. On September 7 and 8 weak Auroral propagation was observed in Northern DL and Scandinavia (K=5, A=27).

Max says that he has had no TEP or F2 propagation on 6m so far. "I hope for some events to ZS6, V5, 7Q7 in October (hopefully this year, hi)."

News à la carte...

• **Cycle 23** may start in early 1996, according to W3EP. According to yours truly with no scientific evidence, we worked the first Cycle 21 F2 in April 1979, when the flux climbed over 100, and the last in April 1984. We worked the first Cycle 22 F2 in October 1988, when the flux hit 100 plus and the last in March 1994.

On these two statistics one could predict that October 1998 is the start date for the first F2 and lasting until 2004. Give or take a year...

• **QST** carries stories of Es contacts on 222 MHz made by WD4AFY (1450 km) and W9UD (1331 km) around midday in late June 1994.

• Notification of another silent key, this time **George PAØFM/P43FM**, on August 19.

• Several CQWW DX stations will operate on 50 MHz after the contest including **C5/G4KLF, V73H** et al, **V47NF** etc.

• **9V1ES, 9V1YJ** and **9V1ZB**, never came on, *that's* why you never heard them! David **VK3HZ/9V1** has returned and advises that he is setting up on VHF in 9V1.

• **5W1MM** is operational from Apia until the end of the year using a Kenwood TS-690S and a 7-element Yagi. Watch for him during the early morning Es. QSL JE6IBJ.

• **UN7AX** in LN53 Kazakhstan was worked by **DL4MDQ** at 0826z on July 9.

• **PAØHIP** heard **PY5CC** on TE on July 12.

• Active stations from Russia et al are UB1O, US7CQ, UTØMN, UU8JJ, UY5ZZ, UX1MF, UXØFF and RMØM, according to **G4UPS**.

• **OX3LX** in Greenland had recently logged the following stations: VE2TWO/B, TF3SIX/B, VO1ZA/B, LA7SIX/B, OH1SIX/B, and several other beacons. He also worked LA, OH, OZ,

SM, VE1PZ, VE9AA, 15 W1s, KC4YO, W4EQM, VO2GD, VE1YX, and heard KN5S.

• **SM7FJE** worked ER5, HB9, SP9, YU1, G1, I2, JY7, T7ØA, Z32, YO9, RA3, 4Z4TT, LA5, EH6, EH7, EI3, 2J1, 9A3, F, GM7, T97V, C31, CT1, EH8, EU6, EW7, IA5F, SV8, RA3TES, US7CQ, VE1RAA, 10 W1s, three W2s, five W3s, four W4s, KD5RO, three W8s, CT1DVV, EH4CV, EH8ACW, F1AUX, 5T5JC, W4OO and N4EJV, and heard CM3, CO2 and W1 through 5 stations, all in just 24 days of operating during June.

• **Z23JO** logged TEP to 9H5EE, SV1AQQ, SV9ANK, SV8RV, YU7AS, 9H1AL, 9H5ET, 9H1CG, 9H1EE and 9H1ET, and heard SV9SIX and 9H1SIX beacons.

• During the mid-winter Es **ZL4AAA** logged the following stations: VK4RGG/B, VK4KK, VK2s, VK4s, VK3SIX/B, VK4SIX, VK5BC, VK2FLI, VK4PU and others.

Bob said that the VK4RGG was available every day in June and most days in July, but very few amateur stations were worked.

Beacons

• The **GARC** is being pressured to fire up a six metre beacon at Mt Anakie. We have plans for 432 & 1296, and we

VK/ZL/O Beacons

Here are some beaut beacons for summer Es spotting:

Freq	Call	Loc	Pwr	Ant
50.005	VK9RNI		25w	TBA
50.014	9M6SMC	OJ85	03w	Gr Plane
50.019	P29BPL	QI30	12w	Vertical
50.043	ZL3MHF	RE66	20w	Vertical
50.0535	VK3SIX	QF02	15w	Vertical
50.057	VK7RNW	QE38	20w	X-dipoles
50.057	VK8VF/B	PH57	20w	Vertical
50.058	VK4RGG	QG62	06w	Unknown
50.061	KH6HME/B	BK29	20w	Dipole
50.064	KH6HI	BL01	60w	T-stile
50.0775	VK4BRG	QG48	03w	T-stile
50.087	VK4RTL	QH30	15w	Proposed
51.022	ZL1UHF	RF73	25w	Vertical
51.029	ZL2MHB	RF80	10w	Vertical
52.326	VK2RHV	QF57	10w	Vertical
52.347	VK4ABP	QG26	10w	Vertical
52.420	VK2RSY	QF56	25w	T-stile
52.425	VK2RGB	QF59	05w	Omni
52.445	VK4RIK	QH23		Unknown
52.450	VK5VF	PF95	10w	T-stile

Reproduced with kind permission from **JA1VOK**.

The listing first appeared in the Nov 93 issue of *Five Nine*.

already have 144 MHz... Steve's reporter, Lee VK3PK, is writing the software for the controller at present.

Part of its function is to transmit the time in UTC every 10 mins or so. It has the facility to have a ROBOT contact built into it, but to date that has not been activated as it has low-level signal detection problems. With strong signals it works fine (on CW, of course).

- **VK4RTL** in Townsville QH30 is proposed for a shift from 52.442 to 50.087 MHz putting further pressure on the release of extra band space for 6M ops in VK,

- **V73AX** has been reactivated on 50.036 MHz by AH6IO during a recent trip.

- The **V44K** beacon has been set up on 50.0555 MHz with 3.5 watts to a dipole.

- The **VK9RNI** beacon is almost complete and will soon be in place.

- The **VK0IX** beacon has not been notified at press time, but we wait in hope...

- **7Q7SIX** in JH74 signs on 50.003 MHz and should be a common sound in 1998

Grid Fields

One more thing about field hunting... the final goal about hunting fields (according to the rules used by Maritime mobiles) are okay for the list.

There are over 50 fields covered by

open sea so /MM contacts are very valuable.

The station worked has to be on the earth's surface. NO limits for stations not being land-based. 324 grid fields are possible.

Field Hunters' List

<u>Callsign</u>	<u>QTH</u>	<u>Fields</u>
NI6E/KH6	BK	88
W5OZI	EM	74
WA6BYA	CM	68
VK3OT	QF	67
K0US	EN	67
KN5S	DM	66
SM7FJE	JO	65
SM7AED	JO	63
S59A	JN	59
NOLL	EM	57
WB8YFE	EN	56
PA0RDY	JO	53
LA9ZV (sk)	JO	52
SM7BAE	JO	52
W1JR	FN	51
ZS6WB	KG	51

A further 26 stations make up the list of 41 standings. This is a great leveller! Why not send in your totals?

73 de Johnny SM5INC @
SK5BB.#AROS.U.SWE.EU

Going Tropo

A daily net on 50.115 MHz meets under the guidance of John Patterson with the aim of introducing long distance propagation conditions to initiates and also to promote the active use of 50 MHz for uses other than long-haul paths. If you are interested, try 7:00 am EAST on the frequency mentioned.

EME

Jimmy, W6JKV and **Bob, K6QXY** advised me that the October segment of the EME tests from **VE3ONT** were cancelled at short notice, and no details on whether the Nov 11 ARRL EME week-end would be scrapped as well.

Many stations made frantic efforts to set up for EME including **Pete, VK3AMX (P29CW)** from Drouin, Vic, with a Rhombic; **Trevor, VK4AFL** using an 11-element brand new **M²** Yagi and **Peter, VK1RX** with four-stacked set of 15-element 432 MHz Yagis.

Sources

JA1VOK, The 50MHz DX Bulletin, Six News, G4UPS News, SM7AED News, OZDXB. Thanks also to **VK4AFL** and **VK3ATQ**.

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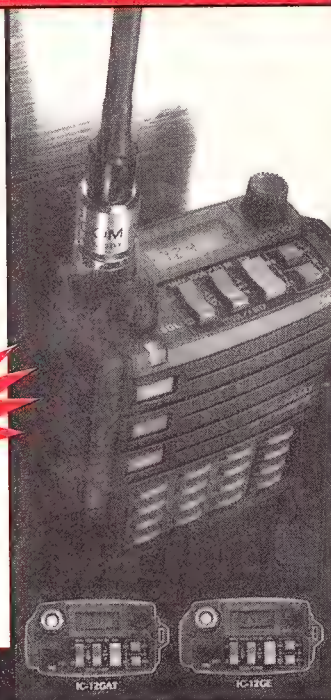
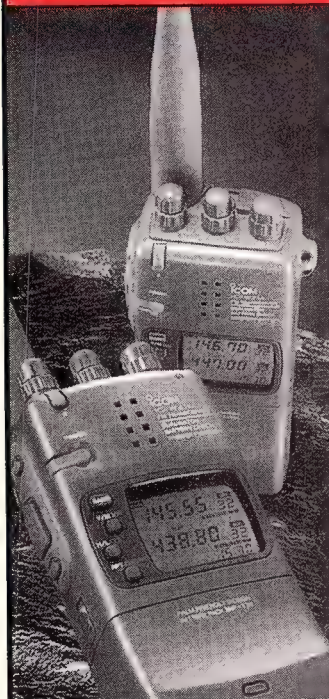
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- * 20 MEMORY CHANNELS
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THESE TWO ITEMS ARE
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SHORTWAVE LISTENING

All times are expressed in Co-ordinated Universal Time (UTC or 'z'). Add 10 hours for Eastern Standard Time, 9.5 hours for Central Standard Time, eight hours for Western Standard Time and 12 hours for New Zealand Standard Time. If you're in a Daylight Savings Time zone, add an extra hour to the above.

AWR from the new Russia

It was a cold -20° Celsius when **Adventist World Radio** board chairman Kenneth Mittleider and president Walter Scragg threw the switch to inaugurate the first AWR broadcast from Russia.

The date was March 1, 1992, and AWR was the first religious broadcaster to begin utilising government shortwave facilities in the former Soviet Union. It seemed ironic that equipment once used to spread Communist Propaganda would now be used to spread the Christian message.

Almost from the beginning, the Soviet Union was one of the most active of all international broadcasters.

During the 10th anniversary of the Bolshevik revolution in 1927, foreign guests in Moscow were invited by the Soviet authorities to send messages in their own languages back to their home countries.

This service ended when the celebration was over, but the experience encouraged the Communists to establish a permanent broadcast service in 1929, and by 1930 the Soviet Union was already broadcasting in 50 different languages and dialects. The BBC, in comparison, did not begin its overseas service until 1932.

AWR first started using a facility located near Novosibirsk in Siberia. The station was built in 1956, three years after Stalin's death, and consists of eighteen 100 kW transmitters and numerous curtain antennas. It could very well be that Stalin was involved in the planning of the complex. It is located in a strategic position for broadcasting to both China and India.

With the help of Russian Adventist Media Center director, Peter Kulakov, AWR Russia continued to grow. Broadcasts were added from stations located near Ekaterinburg, the infamous city where the last Czar, Nicholas II, and his family were executed, as well as Samara and Moscow.

Land lines were installed from the Adventist Media Center in Tula, some 200 km

south of Moscow, to the main switching center in the capital itself, located only a few hundred metres from Red Square.

The Adventist Media Center is a modern building which houses radio studios, administration for radio and TV television broadcasts, a Bible correspondence school, and the office for AWR Russia.

The *Voice of Hope* programs produced in Tula are broadcast on two national channels in Russia, and can be heard via an extensive network of cable, FM, medium wave, long-wave and shortwave stations.

During 1994, programming from Ekaterinburg and Moscow was transferred to AWR's new leased facility in Rimavska Sobota, Slovakia, and AWR staffer Adrian Peterson says the Novosibirsk transmissions will also be phased out in the near future. This may have something to do with the use of a further site in Slovakia, at Velke Kostolany, and the addition of the third 100 kW transmitter at AWR's Guam complex. Thus, it seems Samara may ultimately be the only remaining AWR shortwave outlet in the new Russia.

Kind acknowledgment is given to AWR's *Current* newsletter for providing much of this information.

Switzerland schedule

Swiss Radio International's current schedule indicates further usage of frequencies outside of, or on the edge of the assigned broadcast bands.

Of particular interest is 6205 kHz, in use to the Middle East and Africa 1700-1900z, with 30-minute segments in English, German, Italian and French.

This channel also pops up on the South American beam, 2215-0000z in French at 2215, German 2230, Italian 2300 and Spanish 2330z.

Another oddball frequency, 9905 kHz, is used by SRI's new French Guiana relay from 0030-0530z, beamed to the Americas.

Services to the Pacific, Far East and South East Asia are currently listed:

0830-1100z 9885, 13,685, 17,515 kHz (English **0900-0930z**)

1100-1300z 9885, 11,640, 13,635 kHz (English **1100-1130z**)

1300-1500z 7250, 7480, 11,640, 13,635 kHz (English **1300-1330z**)

Note that 7250 and 7480 kHz are relayed via facilities in China.

Russian change

Following up on last month's item about the Russian broadcasting scene, observant listeners will have noticed that **Radio Moscow World Service** has been transformed into **Voice of Russia World Service**, a change which had been anticipated for some time.

The station asserts that the new title more accurately reflects the nature of the external service, and also brings the foreign language services into line with the Russian broadcasts, which have for some time gone out under the **Voice of Russia** label.

HCJB news

HCJB in Quito, Ecuador made some significant frequency changes on November 1, including a much-needed move away from the very patchy 11,925 kHz, which has been used in the Pacific service for many years.

English to Europe 0700-0830z is now on 9420 and 6205 kHz, replacing 11,835 and 9600 kHz. The evening transmission for Europe, 1700-2000z, some weeks ago moved to 15,490 kHz, in lieu of the short-lived 15,350 kHz. Listeners in the Pacific can now tune into 6135 kHz, 0700-1130z, running in parallel with 9745 kHz. A newish channel for the Americas is 12005 kHz, in use 1100-1430z, replacing 17,890 kHz.

The popular *DX Partyline* segment now only has one airing for Australian listeners — Saturdays at 1008z. If this time proves inconvenient, I have found 17,490 kHz USB provides quite a good signal at 0108z Sundays, despite its modest 25 kW output. (The voice is okay, but you should hear the *music* in SSB, though — yuk!) In further news, the spring edition of *HCJB News* indicates that the HCJB-sponsored **Cherith Radio** in Bukavu, Zaire plans to implement shortwave broadcasts at some time in the future. Presently the station only operates on FM with 10 watts, covering the Zaire/Rwanda border, though staff hope to upgrade this transmitter to 100 watts. Cherith Radio is operated by an organisation known as *Believers Express*, and carries evangelical programs in French, Swahili and Kikongo.

VOA news

The *Voice of America's Communications World* program is now being given greater emphasis, running 10 minutes longer than previously since November 5. The segment, hosted by Gene Reich, concentrates on developments in communications technology including computers, satellites, telephones and, of course, radio.

New timeslots are also in operation, and these are: Saturdays to Asia, Africa, the Middle East and Europe at 1030, 1230, 1630 and 2130z, and to Latin America at 2330z. A multiplicity of frequencies are involved, so it's probably easiest to list the VOA's English transmissions to the Pacific and Oceania:

1000-1200z 11,720 kHz (Philippines)

1000-1200z 5985 kHz (Delano, California)

1000-1500z 15,425 kHz (Philippines)

1100-1400z 9645 kHz (Udon, Thailand)

1200-1330z 11,715 kHz (Philippines)

1900-2000z 11,870 kHz (Philippines)

1900-2000z 15,180 kHz (Philippines)

1900-2000z 9525 kHz (Philippines)

2100-0100z 15,185 kHz (Philippines)

2100-0100z 17,735 kHz (Philippines)

2100-2200z 11,870 kHz (Philippines)

2200-0000z 15,305 kHz (Philippines)

2200-0000z 9770 kHz (Udon, Thailand)

Relay sites are in brackets.

Relays of VOA broadcasts via the high-powered facility at Plovdiv, Bulgaria are now scheduled:

0600-0630z 15,080 kHz English to West Africa

1800-1900z 13,680 kHz English to West Africa

Schedule information is courtesy of Dan Ferguson's posting on Compuserve.

In other news, the VOA's *Special English* department is currently celebrating its 35th anniversary.

Segments in 'special' English are read at slow speed for the benefit of listeners who are learning the English language, or for those who have only a rudimentary grasp of its many nuances. Limited to a vocabulary of 1500 words, the 'special' English programs are in great demand, particularly in the Asian region.

Sweden

Radio Sweden in Stockholm has this schedule for English broadcasts until March 25, 1995:

To Asia/Australia

1230-1300z 13,775, 15,120, 15,240 kHz
2330-0000z 11,910 kHz
0130-0200z 9895, 11,695 kHz

To Africa/Middle East

1830-1900z 6065, 9655, 13,690 kHz
2130-2200z 6065, 9655 kHz

To Europe

1715-1745z 6065, 1179 kHz
1830-1900z 6065, 9655, 13,690 kHz
2130-2200z 6065, 9655, 1179 kHz
2230-2300z 6065, 1179 kHz
2330-0000z 1179 kHz

To North America

1330-1400z 11,650, 15,240 kHz
1430-1500z 11,650, 15,240 kHz
0230-0300z 9850, 6200 kHz
0330-0400z 9850, 6200 kHz

To Latin America

0030-0100z 6200, 6065 kHz

This news from Frederick Gordts, via the Fidonet Shortwave Echo.

It is interesting to note comments on the bulletin boards recently attributed to George Wood, who produces *Media Scan* in the Tuesday English broadcasts of **Radio Sweden**.

Listeners of that station will recall that the program was a couple of years ago known as *Sweden Calling DXers*, and had been one of the longest running and most authoritative programs for shortwave enthusiasts on the bands.

The latter-day version concentrates almost entirely on satellite developments, Radio Sweden having decided some time ago that it had no intention of catering for such narrowly-focused hobbies as shortwave DXing. For this reason *Media Scan* has come in for much criticism from people who had traditionally looked forward to their regular Tuesday evening 'fix' of DX news.

Although George Wood espouses the supposed merits of *Media Scan* in its present format, he seems to be distancing himself from

the station's programming philosophy in this instance, claiming that management would prefer the program to simply be a review of the Nordic press but for his representations.

Could it be that stations which are trying to avoid catering to a shortwave hobbyist audience by bombarding us with satellite information are simply providing for a different specialised group now — the satellite hobbyists?

Equipment news

A few months ago I made mention of the existence of a keypad for tuning the **Yaesu FRG-100** — one of the few important features which off-the-shelf models of this budget-priced receiver lacked.

Being now in possession of such a keypad, I can vouch for how much easier the FRG-100 can be to operate when it's so fitted. In fact, the mouse-like device is probably ergonomically preferable to an inbuilt keypad on the receiver's front panel, and simply plugs into the CAT (Computer Aided Transceiver) socket at the rear of the set.

Manufactured by France's BEEI, the keypad is available from Universal Radio in the US (6830 Americana Parkway, Reynoldsburg, Ohio 43068) at US\$54.95 plus \$15.00 airmail shipping — approximately \$100 Australian all up. International orders by phone are accepted, using Mastercard or Visa. I'm unaware of any Australian stockists at this point.

Austria

The English language *Report From Austria* now goes out thus from **RAI** in Vienna:

To Africa

1930-2000z 13,730 kHz

To Asia

1230-1300z, 1330-1400z 15,450 kHz
1530-1600z, 1630-1700z 11,780 kHz

To Australasia

0830-0900z, 1030-1100z (Monday to Friday)
15,450, 17,870 kHz

To Europe

0530-0600z, 0830-0900z 6155, 13,730 kHz
1030-1100z (Monday to Friday), **1230-1300z**
6155, 13,730 kHz
1530-1600z 6155, 13,730 kHz
1930-2000z 6155, 5945 kHz

To North America

0130-0200z 9655 kHz
0530-0600z, 0630-0700z 6015 kHz
1230-1300z 1,730 kHz

To Latin America

1330-0200z, 0330-0400z 9870, 13,730 kHz
2330-0000z 9870, 13,730 kHz

To the Middle East

0530-0600z 15,410, 17,870 kHz
1530-1600z, 1930-2000z 9880 kHz

Canada

A recent report on **Radio Nederland's**

Media Network program indicated that the Canadian government intended pruning back the operations of the **Canadian Broadcasting Corporation (CBC)**, which could involve the loss of some 1,000 jobs, albeit some through natural attrition.

This would appear to dampen the hopes of those currently making representations to the Canadian Senate in the hope of restoring the international service, **Radio Canada International**, back to a more comprehensive operation, having itself felt the effects of the treasurer's knife a couple of years back.

Long gone are the days when RCI had a service for the Pacific region, however Asia is reasonably well served with these English programs:

1230-1300z 6150, 11,730 kHz (via Yamata, Japan)

1330-1357z 6150, 9535 kHz (via Xian, China)

1630-1657z 7150, 9550 kHz (Xian)

2200-2230z 11,705 kHz (Yamata)

A less stodgy approach to frequency management would make some, or all of these broadcasts better heard in Australia.

Incidentally, this coming Christmas Day will herald the 50th anniversary of Radio Canada International, for it was on December 25, 1944 that experimental transmissions began from Sackville, New Brunswick, to Europe.

On February 25, 1945 the then Prime Minister of Canada, Mackenzie King, officially made the opening broadcast of the **International Service of the Canadian Broadcasting Corporation**, now known as Radio Canada International.

The first aim of the service, to broadcast to Canadian forces overseas, grew rapidly to also, in the Prime Minister's words, "bring Canada into closer contact with other countries".

Thus, RCI has for 50 years provided a window on Canada for other nations and a link with home for expatriate Canadians.

During those years, the service has expanded and contracted, and languages have been added while others have been dropped.

Throughout, shortwave has been the mainstay, but also there has been an increasing amount of programs produced for rebroadcast on domestic stations — in 24 Russian cities, 15 cities in China, in Estonia, Lithuania, Latvia, Belarus, Moldova, Ukraine, Georgia, Azerbaijan, Armenia, Kazakhstan, Namibia and in 15 Latin American countries.

Look for special features on the anniversary from December to February, during regular RCI broadcasts.

WEWN schedule

Catholic station **WEWN** in Birmingham, Alabama has this schedule through to March 26, 1995:



Invest in the future of amateur radio.

Join the WIA

The National Society for
Australian Radio Amateurs

For more information, forward
this coupon, or write to:

WIA FEDERAL OFFICE
PO BOX 300
CAULFIELD SOUTH
VIC 3162.

Registered Address:

3/105 Hawthorn Road, Caulfield North, 3162.

Please send a WIA information package to:

NAME:.....

ADDRESS:.....

.....POSTCODE:.....

SHORTWAVE LISTENING (continued)

Transmitter A

2200-0800z English on 7425 kHz; 0800-1000z English, 1000-1100z Spanish on 9350 kHz; 1100-1600z English on 7425 kHz; 1600-2000z English, 2000-2100z English/French, 2100-2200z English on 13,615 kHz, all beamed to North America.

Transmitter B

0000-0800z Spanish on 9985 kHz; 0800-0900z English, 0900-1000z Portuguese, 1000-1100z Spanish on 7425 kHz; 1100-1200z Spanish, 1200-1300z English/Spanish, 1300-1400z Spanish on 9985 kHz; 1400-1800z Spanish, 1800-1900z Spanish/English, 1900-2000z English, 2000-2100z Portuguese/English, 2100-2200z English, all on 18,930 kHz; 2200-2300z Portuguese, 2300-0000z English on 11,820 kHz, all beamed to the Americas.

Transmitter C

0000-0200z English to Europe 5825 kHz; 0200-0300z English to the Middle East on 9410 kHz; 0300-0400z Russian, 0400-0500z Byelorussian, 0500-0600z Czech/Slovak, 0600-0700z Dutch, 0700-0800z Polish all to Europe on 5825 kHz; 0800-0900z Hungarian, 0900-1100z English to Europe on 7465 kHz; 1100-1200z English to Korea, 1200-1300z English to Japan, 1300-1400z Mandarin to China on 7465 kHz; 1400-1500z Lithuanian to Europe, 1500-1600z Arabic to the Middle East on 17,510 kHz; 1600-1800z English to Europe, 1800-1900z English to West Africa, 1900-2000z English to Europe on 15,695 kHz; 2000-2100z Serbian/Croatian, 2100-2200z Italian to Europe on 7520 kHz; 2200-0000z German to Europe on 5825 kHz.

Note that there are no longer any broadcasts designated for the Pacific region.

News in brief

Our regular roundup of brief news items and topical loggings:

• **Radio St Helena** Day, 14 October, has again come and gone, with quite reasonable reception observed in Eastern Australia of the annual shortwave broadcast from the tiny island in the Atlantic.

Best signals were at 2030z on the advertised frequency of 11,092.5 kHz USB. Reception reports should be sent to: Radio St Helena, Broadway House, Jamestown, Island of St Helena, South Atlantic Ocean.

• Uzbekistan's **Radio Tashkent** is using a frequency in the 22 metre band for what is believed to be the first time.

At 1200z and 1330z English is observed on 13,785 kHz, running in parallel with 6025 and 9715 kHz.

• **Radio Tirana** in Albania continues to have transmitter problems, the English service for North America being audible on 11,837.7 kHz at 0230z.

Albania is relatively difficult to hear from these shores, in contrast with some years ago when there were transmissions specifically targeted to this region.

• Brazilian station **Radio Universo**, Curitiba, is being regularly heard on its 25 metre band frequency of 11,765 kHz, with best reception

at 0830z. Although this station has been active on 25 metres for some months, reports of Australian reception have been rare. Universo is more regularly heard on 9565 kHz, and occasionally 6060 kHz, also around 0830z. My logbooks indicate that the last time I noted a Brazilian on 11,765 kHz was when the Sao Paulo station, **Radio Tupi**, was active on the frequency many years ago.

• **Radio Dniestra International**, from the breakaway Moldovan state of Pridnestrovye, is currently being heard 2130-2200z on 9620 kHz in English. Unfortunately, signals are somewhat weak.

• **Radio Korea International** terminated its Italian broadcasts on 1 November, reducing the station's output to 10 languages. Italian was one of the more recently-introduced segments in the RKI schedule, having only commenced in 1985. This move was not unexpected in view of budgetary constraints which saw the deletion of Portuguese programming earlier in the year.

• '**Radio Amahoro**' is the name of a station broadcasting to the Rwandan region, using transmitters situated near Addis Ababa, Ethiopia. This operation is sponsored by a Belgian humanitarian group, and reception has been observed in Australia on 9560 kHz from 0430-0500z. An evening transmission is also listed, from 1700z on 9790 kHz, via **Africa No 1** in Moyabi, Gabon.

However, this frequency is comprehensively blocked by the station at Abu Dhabi, in the United Arab Emirates, which also signs on at 1700z.

• **Radiodifusora Nacional** in Bogota, Colombia, has reactivated its 31 metre band frequency of 9655 kHz, noted irregularly after 0430z until sign-off at 0450z. Programming is in Spanish, and is relayed from medium wave 570 kHz.

• US Christian station **WWCR** in Nashville has broken new ground by adopting a frequency just above the 60 metre tropical band — 5065 kHz. Best reception in Australia is after 0900z, though mid-winter would be a more favorable time of year for such trans-Pacific propagation.

• Educational station **Radio Candip**, in Bunia, Zaire has been noted on 5066 kHz, with French programming at 1530z. On favorable nights, reception has also been known on the station's parallel frequency, 3390 kHz.

Bulgaria

Radio Bulgaria presently announces this schedule for English broadcasts:

0000-0100z 7205, 9700 kHz to North America

0500-0600z 7335, 9700 kHz to North America

1000-1100z 12,040 kHz to Australia

1230-1330z 9770, 11,740 kHz to Asia

1900-2000z 7305, 9700 kHz to Western Europe

2200-2300z 7105, 9700 kHz to Western Europe

More news from the broadcast bands next month!

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• **Yaesu** SP-6 ext spkr \$100. **Shure**-444 desk mic \$80. **Shure**-404 hand mic \$25. All in new boxes. Offers cons. Greig, VK1BSM (06) 231 5765

VK2 AREA

• **10M** AM/SSB xcvr, conv CB base station 28.3-28.6MHz. **Realistic** DX160 comms rcvr, covers .15-30MHz AM/SSB, ext spkr. Both 12/240V, full manuals \$75 ea. Brian, VK2VBO (02) 953 2817. Transmitting gear sold to licensed amateurs only.
• **AEA** PK-900 TNC, hardly used, as new in carton c/w hndbk all cables, accss \$1200 ono. **Yaesu** YC-500S freq counter \$350. **Kenwood** AT-250 auto ATU, incl 4-way ant switch, pwr meter, SWR meter, fully auto with TS-140/TS-680 etc, with cables in orig carton \$450. Peter, VK2APP (063) 83 6206. Transmitting gear sold to licensed amateurs only.
• **AOR**-2500 scanner 0.5-1500MHz, 1984 channels, rcvs AM, W-FM, N-FM, SSB, like new, still in box, with all accss, pwr supp etc \$520. George (02) 642 8970
• **Armstrad** NC-100 laptop computer, uses batt, 12VDC or 240VAC, near new, complete with word proc program, hndbk, travel case, transfer lead, modem. \$250 ono. Peter, VK2FFA (043) 24 4160
• **Drake** CW filit SL-300, \$50, **Icom** CW filit FL-32A (suit IC-735), \$50. **Eimac** tubes: 3-500Z (new) \$150, 6146B (two) plus 12BY7, \$100. Mark Zbylut, PO Box 1609, Hornsby, 2077 or (02) 482 1565 (Full residential address supplied.)
• **Eimac** 4CX1500B tubes \$95. **Jennings** D-57 vacuum relay \$55. **Megger** & leads GC \$175. **HP** VTVM with leads & probe \$95. **HP** sig gen 10-420MHz \$200. **Gresham** 6.5V filament transformer, new, oil-filled 2x12amp \$50. **Ceramic** frame change-over relays 110V, new \$45. **Avo** M-7 Mk2, new leads, GC \$90. **30A** line filter \$60. Ron, VK2DTR (02) 918 3835

CAVEAT EMPTOR — BUYER BEWARE

The acceptance of classified advertisements in the Amateur Radio Action classified advertising section does not warrant in any way that the goods offered are available, free of any encumbrance, in working order or otherwise satisfactory. The purchase of goods by private sale does not offer the purchaser any protection under law, and buyers should be certain the goods under consideration are suitable for the purpose for which they are required. Amateur Radio Action cannot accept any responsibility for goods advertised in the classified pages and no correspondence will be entered into regarding such goods.

The onus is on you...

• **Hewlett Packard** 2621P terminal with monitor, built-in printer & kybrd, suit Packet applications. \$80 ono. Gary, VK2NOV (063) 52 3706
• **Kantronics** KPC-3 VHF/UHF TNC with all cables plus software for PC \$200. Steve, VK2YR (02) 821 1803
• **Kenwood** TS-520S HF xcvr, mint cond 5yrs use only, orig 2001 valves, MC-50 desk mic, manuals \$500 ono. Bob, VK2MRJ (044) 47 3439. Licensed amateurs only.
• **Magazines**: 30 AR, 50 ARA mags, past to present \$25 plus post. Face value \$257! Brian, VK2MQ (069) 47 0321 B/H (069) 47 1213 A/H
• **MFJ**-1278 multi-mode controller & TNC \$180.
• **PacComm** PSK-1 satellite modem \$120. **Yaesu** FT-690R Mk2 all-mode 6M xcvr VGC \$600. Nigel, VK2KSU (02) 621 8939. Transmitting gear sold to licensed amateurs only.
• **Satellite** LNB, new, C-band 18-23° \$225. **Satellite** dish, new 2.2m, okay for C and K band \$195. John, VK2DDA (02) 747 6485
• **TNC**-200 packet controller \$180, **Sony** ICF-2001 rcvr \$200, **Telereader** CWR-685A \$400, **Hallicrafters** SX-117 rcvr \$150, valves 813s (new) \$40. Tom, VK2OE (046) 21 2228
• **Wanted**: Circuit diagram /

manual for Realistic AX-190 rcvr. Also wanted Realistic SX-190 rcvr & manual. Joseph (02) 96 3008
• **Wanted**: Collins 52S-2 or 52S-1 rcvr, SM-1 or SM-2 mic, quality valve tester, Astatic D-104 mic, Drake PS-7 PS. Tom, VK2OE (046) 21 2228
• **Wanted**: HF linear amp, Kenwood SM-220 station monitor. Malcolm, VK2BMS (02) 257 4583 B/H, (02) 968 1114 A/H
• **Wanted**: Trio 9R59DS comm rcvrs, also SW and/or MW QSL card collections. John (02) 525 8901
• **Welz** SWR & power meter SP-122 1.6-60MHz 20-2,000watts \$100 ono. Kerry, VK2AYY (045) 72 5844
• **Yaesu** all-mode xcvs: FT-480R 2m \$300; FT-680R 6m \$400; FT-780R 70cm \$500. **Tokyo** Hy-Power linear amps; HL-160W (2m 160W out, 3 or 10W in), \$350; HL-90U 70cm 90W \$350; Kenwood SW200B SWR meter 140-450MHz with 6m, 2m & 70cm modules \$125. **Kenwood** DM-81 dip-meter \$100. **Coax** relays \$20ea. All above items are brand new, never used, in boxes. **Kenpro** KR-500 antenna elevator \$200; **Iwasaki** rotator \$100; 2m & 70cm antennas for satellite \$25ea. Regulated pwr supp 13.8V 33A cont \$250; transformer 17V 77amp \$50. **Aluminium**

tubing 1.5" 6M lengths \$10ea. **Dummy** load 1000W, oil-filled \$40. **UHF coax**, lots of 'N' connectors, and more! Tom, VK2ZHR (049) 30 7671. Transmitting gear sold to licensed amateurs only.

• **Yaesu** FT-101B HF xcvr with four spare finals \$520. **Yaesu** FT-101Z HF xcvr with YD-148 desk mic & four spare finals \$620. **MFJ**-941D 300W tuner \$150. **Emtron** EP-200 SWR power meter \$50. **Modem** PC-Plus, model 123-AT 1200BPS (new) \$80. **Anixter** mobile whips (set 5) 80-10 metres (new) \$200. **Marconi** TF-995A/3/S signal generator, military version, EC with all accss & complete TF995A/2 for spares \$200 (pair). Low loss rigid coaxial cable (new): Gedelex 2.3/50 90mtr \$100. 70mtr \$80. Gedelex 4.6/50 30mtr \$50. **Heatsinks** anodised & finned 305 x 102 x 32 \$12ea or 5/\$50. **Power** transistors PNP/Ge 2N277, S1157, B1412 \$1ea. All eqpt in near new cond. Jim VK2AXY (064) 95 3604. Transmitting gear sold to licensed amateurs only.
• **Yaesu** FT-200 100W hybrid 80-10m xcvr, EC with orig pwr supp & hdpnes \$350. Brad, VK2KQH (02) 906 5855 B/H, (018) 64 0377 A/H. Licensed amateurs only.
• **Yaesu** FT-212RH 45W 2m mobile xcvr \$450. **Yaesu** FT-26 2m HT \$300. Both radios GC, with orig boxes. Colin, VK2AXX (02) 30 8685. Licensed amateurs only.
• **Yaesu** FT-26 2M HT xcvr with two NiCd packs & chrgr, sft case, spare 1/4 wave whip, with Yaesu MH-12A2B spkr/mic, Yaesu YH-2 headset (works with vox) All as new with manuals, RRP \$750 now, \$550 the lot. **Palomar** noise bridge for setting up HF antennas -manual \$50. **PacComm** Tiny-2 TNC with DCD open squelch device fitted, manual, as new cond \$210. Theo VK2AIS (044) 55 5127. Transmitting gear sold to licensed amateurs only.
• **Yaesu** FT-707 HF xcvr with FV-707DM ext digital VFO & mobile mtg brkt. Will not sep \$775. **Icom** IC-1210 1.2GHz mobile FM xcvr \$400. **Bearcat** DX-1000 HF comms RX, 10kHz to 30MHz, dig r'out etc \$395. **Ranger** AR-3300 10M

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RX version \$25 p/p \$3.50.

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4306. Phone/Fax (074) 643 954

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all-mode (incl FM) xcvr, 30W PEP \$295. All in GC with manuals etc. No offers. Freight extra. Andy, VK2AAK (065) 66 8576 B/H, (065) 69 9441 A/H to 8:30pm only. Transmitting gear sold to licensed amateurs only.

VK3 AREA

• **Bayside QTH:** 3-bdrm brick plus shack, sea views, exc UHF/VHF area. Has Nally tower. \$125K. Ted, VK3TG (052) 59 3225

• **Cushcraft R5** vert HF antenna, covers all 5 bands 14-28 MHz, as new, used once \$400 ono. Stan, VK3VJQ (051) 55 3475

• **Cushcraft R7** 7-band HF vert antenna, all bands from 40 to 10M, comp with spare hdwre & insts. \$700 ono. Denis, VK3BGS (03) 689 8097 or 018 05 8974

• **Drake R2-C** 3.5-30MHz comms rcvr, with matching spkr, mint cond, manual. Some spare parts, only one owner. \$325. Keith, VK3MDH (03) 570 7592

• **Icom AG-1200** 23cm mast-head preamp, mint cond \$150. **Yaesu FT-2311** 23cm 10W FM mobile \$350. Ross, VK3SR (03) 481 8482. Transmitting gear sold to licensed amateurs only.

• **Icom IC-22S** 2m xcvr, diode channel config, just serviced \$250. **Icom IC-22** 2m xtal-locked xcvr, \$145. Both with mobile bracket, Graeme, VK3MBZ (03) 435 4336. Licensed amateurs only.

• **Icom IC-2GA** 7W(!) 2m HT with dig disp, 20 mems, with 12 volt adaptor \$300. **MFJ-1270B** TNC-2 packet TNC with **MFJ-1284** 'starter pack' \$200. Joe, VK3TOE (03) 740 8700. Transmitting gear sold to licensed amateurs only.

• **Icom IC-475H** and **IC-275H** high-power base xcvs — ideal satellite station. With Icom SM-8 two-rig base mic, CT-16 & CT-17 tracking & interface units, Kenwood PS-53 pwr supp, Kenpro KR-5600 Az-el rotator, hand mics, manuals, boxes, all in mint cond. Paul, VK3DA (059) 83 1771. Licensed amateurs only.

• **Icom IC-P2AT** 2M HT 100 mems, artif intell. With BP-110 dry cell batt pack, approx 1yr old, \$349. Paul, VK3ERC (03) 572 1003 A/H, (03) 541 6337 B/H. Licensed amateurs only.

• **Kenwood TM-741A** tri-band FM xcvr. One with the lot — and has more than 300 mem-ories! Dual-band 2M/70cm

(50/45W) operation *plus* covers 6M at 50W o/p. Really tiny full remote-control with removable front panel, and long leads for up to three ext spkrs, front panel controller and mic with rest locked in boot or under seat. Has opt CTCSS tone boards installed, and comes with various options. Has built-in clock, time-out timer, cooling fan... and *every* poss control! Great mobile or base unit, now costs around \$2000 as supplied here. Unique! \$1300 or offer. Chris, VK3CE (018) 35 3599 almost anytime. Licensed amateurs only.

• **Kenwood TR-9500** 70cm all-mode xcvr, VGC \$500. **Philips FM-93** 70cm \$150. **Motorola Syntrix** 70cm \$400 ono. Glenn, VK3ZGL (050) 21 1491. Licensed amateurs only.

• **Kenwood TS-450S/AT** HF xcvr, orig boxes & in EC with mobile bracket \$1900 ono. **Chirnside CA-33** triband Yagi & diagrams \$300 ono. Mal, VK3MJG (03) 776 9897. Transmitting gear sold to licensed amateurs only.

• **Kenwood TS-820S** HF xcvr with mic & hndbk, \$600. Vintage **HRO** with orig spkr, pwr supp, seven coil boxes circa 1936 EC \$400. **VK3AQL** (03) 857 8475. Transmitting gear sold to licensed amateurs only.

• **Kenwood TS-820S** HF xcvr, clean unit, part going but

needs more work or ideal for spares \$150. Alan, VK3AMT (03) 789 9106. Licensed amateurs only.

• **Magazines:** **ARA** Vols 1-10 in folders & vols 11, 12, 13 loose. Will not separate, \$70 ono. Collectors items! **VK3BOB** (03) 578 7441

• **Nally** tower, 60ft free-standing, winch up and tilt-over. \$800 or reas offer. Buyer to remove. Rosa, (03) 808 9590

• **Shack cleanout:** **Yaesu FT-470** dual-band HT. Has three batt packs, books, boxes, fast chrgr \$570. **BWD** 506 CRO \$50. **HP** 608D sig gen \$100. **Heathkit** audio sig gen \$25. **Sony HVC400DP** color camera with ext pwr supp \$220 **NEC** 2022 sat rcvr — offers? Ross, VK3SR (03) 481 8482. Transmitting gear sold to licensed amateurs only.

• **Shack clearance:** **Kenwood TS-520S** with MC-50 mic, spare finals \$500. **Yaesu FT-75B** with AC/DC supplies \$250. **Tokyo Hy-Power HL-85V** linear \$80. **Oskeblock SWR-200** \$75. **National HRO** \$150. Keith, VK3BVK (052) 61 3576. Transmitting gear sold to licensed amateurs only.

• **Standard C558** current mod dual-band HT. Top rig with best desirable feats, complete with tone board, spare battery, chrgr, manual etc \$850 ono. Bryan, VK3FBC (057) 75 1628. Licensed amateurs only.

• **Wanted** for wrecking for

parts: **Ken KP-202** 2M HT. Mick, VK3CM (051) 35 5619 B/H, (051) 22 1927 A/H

• **Wanted:** circ for marine xcvr 'Seacom 75A'. Will pay costs. Willem Timmermans, VK3BTQ, 6 Ferny Creek Ave, Upper Fern Tree Gully 3158 or (03) 758 5701

• **Wanted:** **Yaesu FC-757AT** auto ATU & cables to suit **FT-747GX**. Cons swap **Fujica** ST-605 camera, Koboron 70-200mm auto lens, plus others. Norm, VK3ZUY (054) 56 3122

• **Wanted:** **Yaesu FTV-707** 6m & 70cm modules, any cond. Up to \$50 plus P&P. Doug, VK3KAY (053) 39 2778

• **Yaesu FC-757AT** auto ATU, as new \$475. Colin, VK3CLS (03) 546 6297

• **Yaesu FRG-7000** HF comms rcvr, EC with manual \$220. **Yaesu FRT-7700** ant coupler with circ diagram \$50. Joe, VK3FBA (03) 331 0517

• **Yaesu FT-1000** top-shelf HF xcvr optioned with 3rd IF xtal filts XF-D (1.8kHz) & XF-E (500Hz), with DVS-2 digital voice recorder, BPF-1 sub-rcvr bandpass filt, MD-1C8 deluxe desk mic, service manual. RRP \$8200, sell \$4490. **AEA PK-232MBX** 'Pakratt' multi-mode data controller with IBM software \$370. Both units in mint cond, with orig packaging & manuals. Michael VK3EMJ (03) 531 9954 (24hrs) **NB** Reluctant sale to help pay for my wedding. Michael, VK3EMJ (03) 531 9954. Transmitting gear sold to licensed amateurs only.

• **Yaesu FT-101ZD** HF xcvr with spare finals. EC \$500. Michael (03) 428 6998. Licensed amateurs only.

• **Yaesu FT-200** HF xcvr, 80-10m black case, with hndbk, mic, some spare rx tubes, pwr supp. GC \$240. Arthur VK3ENT (053) 32 8184. Licensed amateurs only.

• **Yaesu FT-7** HF xcvr with preamp, atten etc, little use \$400. **Yaesu FT-980** HF xcvr, as new \$1600. Ring anytime. Jack, VK3EK (03) 386 2795. Licensed amateurs only.

• **Yaesu FT-747GX** HF xcvr, EC, with FM board, mobile brkt, gen cov rx, filts fitted, never mobile \$900. **Yaesu FT-470** dual-band HT, with PA-6 adaptor/charger two 1000mA NiCds, CA-2 desk stand, MFJ-1714 half-wave HT antenna, MH-12A2B spkr/mic. The lot \$650. Bob, VK3VCI (053) 58 1252. Licensed amateurs only.

• **Yaesu FT-990** HF xcvr, AC

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- **Yaesu** FT-990 HF xcvr, AC version, with desk mic, EC, orig pack \$2600. **Icom** IC-02A 2m FM HT, BP-8 NiCd pack, spkr/mic, ext ant \$320. Derek, VK3MIA (03) 889 5323. Licensed amateurs only.
- **Yaesu** FV-101 ext VFO, VGC \$100. **Werner Wulf** 4-el 10M Yagi with RG-213 \$100. **Coax** switch, 5-pos \$40. Bob, VK3SX (03) 314 6470

VK4AREA

- **Chirnside** CA-34 triband antenna 10/15/20M, 4-el, 5m boom VGC \$300. Greg, VK4AML (07) 359 8032
- **Everything!** **Kenwood** TS-430S HF xcvr with CW filt, mic \$850. **Yaesu** FP-707 pwr supp \$150. **Kenwood** spkr \$25. Asstd **Morse** keys, **Katsumi** keyer \$100. **CTW** Black antenna \$50. **Hills** two-sect crank-up tower with easy-tilt \$200. **TH-3JR** beam \$100. **Kenpro** rotator \$100. Plenty more, some give-aways. Noel, VK4NPK (075) 73 2832. Transmitting gear sold to licensed amateurs only.
- **Hidaka** VS33 3-el triband ant in VGC \$275 ono. Ken, VK4WKB (074) 91 5798
- **Icom** IC-32AT dual-band HT with chrgr, car adaptor, belt pouch, book. PC \$450. **Kenwood** SM-220 station monitor, older model, Pan-adaptor fitted. With all cables & book, orig pack, GC \$300. **FDK** multi-750A/E all-mode 2m 10W xcvr. Good mobile, with hndbk, mic, cradle & connectors. GC \$250. **Kenwood** SP-520 spkr, EC \$40. Henry, VK4DXC (074) 76 0131. Transmitting gear sold to licensed amateurs only.
- **Kenwood** TH-75A dual-band HT with NiCd pack & chrgr, BC-11 console fast chrgr, VGC, many features. Dual display \$600. **Yaesu** FT-23R 2M HT with NiCd & chrgr, as new \$300. **Kenwood** AT-230 ATU \$300. **Kenwood** TR-3500 \$100. **Icom** IC-2GAT 7W 2M HT \$350. **Tomcat** AM/SSB 40ch CB \$100. **Realistic** PRO-2025 scanner \$85. **Yaesu** FT-301 HF xcvr 100W with FP-301 20A pwr supp \$600 — but cash & carry this one! Keith VK4KL (07) 824 0897. Transmitting gear sold to licensed amateurs only.
- **Kenwood** TH-79A current mod dual-band HT with SMC-34 spkr/mic \$800. A fabulous

rig! **Kenwood** TSU-8 CTCSS unit \$50. **Kenwood** BT-9 batt case \$20. **Kenwood** MB-10 mobile mount \$20. Glen, VK4UGC (075) 35 0919. Transmitting gear sold to licensed amateurs only.

- **Kenwood** TS-120S HF xcvr in perf WO. Incl desk mic & hndbk \$350 ono. Phil, VK4BVM (071) 59 9757. Licensed amateurs only.
- **Kenwood** TS-140S HF xcvr, **Kenwood** PS-430 pwr supp, **Kenwood** SP-430 spkr, **Emtron** EAT-300A ATU. All in near new cond \$1850 the lot.

Antenna: 3-el 10M Yagi (monoband) \$100. Doug, VK4JDS (074) 92 2589. Transmitting gear sold to licensed amateurs only.

- **Kenwood** TS-440S/AT HF xcvr with auto ATU, manual & mic \$1400. Mike, VK4KCF (07) 284 7739. Licensed amateurs only.
- **Kenwood** TS-820S HF xcvr \$450. **Oscilloscope** brand new dual 20MHz with probes, unwanted gift \$500. **Kenwood** TM-401B UHF mobile \$300. Wow & flutter meter \$50. Brian, VK4AED (07) 208 1037. Transmitting gear sold to licensed amateurs only.

• **NEC** switch mode pwr supp 13.8V 30amp DC \$250. Steve (07) 245 2642

- **Philips** FM-828s high-band VHF, suit 2m conv \$30. Various other units, all wkg \$25. Nigel, VK4FNA (074) 63 2606. Licensed amateurs only.

• **Quad** with tower, only \$119,500! Includes bonus high-set four bedroom Queenslander-style home with study & large entertainment area situated at Malanda in the beautiful Atherton Tablelands, 2428' ASL. A great radio location & ideal family home. Would also suit investor for rental purposes. Aubrey, VK4AFO (070) 96 5962

- **Sangean** ATS-803A rcvr with manual & carton, manual tune only \$185 plus freight. Urgent sale. David (076) 54 3019
- **Telex Hy-Gain** DX88 vert antenna, as new in carton \$350. **Datong** FL-3 noise eliminator, as new, compl \$375. Bob, VK4RM (074) 49 7151

• **Wanted:** Early triodes, tetrodes, pentodes, KT88, KT66, KT77, EL34, 6SA7, 300B, 6L6, 845, 2A3, 6A3 plus early valve amp parts etc. John (074) 49 1601

- **Wanted:** HF comms rcvr, must be in GWO with ops manual, reas price. Bob, VK4FPO (079) 27 1442

• **Wanted:** Two-gang broadcast "h" gang capacitor, suit build "Z" match ant coupler. Ian, VK4PF (075) 30 6284

- **Weatherfax** programs for the IBM: RADFAX2 (\$35) is a shortwave weatherfax receiving program for CGA, EGA, VGA or Hercules. Needs Radfax Decoder to operate. SATFAX (\$45) for VGA & MAXISAT (\$75) for 1024 x 768 SVGA are weather satellite picture receiving programs for NOAA, Meteor, GMS. Need Weatherfax card to operate. Available on 5.25" or 3.5" disk sizes, please state which, add \$3 postage. Michael Delahunty, 42 Villiers St, New Farm 4005. (07) 358 2785

• **Yaesu** FRG-7 rcvr with manual & schematics, in top cond \$400 ono. Robert (076) 97 3525

• **Yaesu** FT-101ZD HF xcvr \$600. **Heathkit** SB-200 linear, uses 572Bs \$400. **Swan** 500 HF xcvr with 230XC pwr supp, 12V inverter, Electrovoice mic, VGC. Peter, VK4APD (07) 397 3751. Licensed amateurs only.

• **Yaesu** FT-708R 70cm HT in A1 cond with manual \$150. Carsten, VK4CIC (07) 264 6443

• **Yaesu** FT-767GX HF+ xcvr — full HF coverage plus 6M, 2M & 70cm modules, CAT with FIF-232C interface & MD-1 desk mic \$2450. Michael, VK4NH (07) 283 1114. Licensed amateurs only.

• **Wanted:** Kenwood TL-922 or TL-922A HF linear amp in GC. Also Kenwood TS-940S xcvr in immaculate cond. Would prefer one equipped with optional CW filts. Steve, VK6VZ (09) 298 9330

• **Wanted:** Kenwood TS-940S, must be GC, also MC-60 mic. Write to Baylee Roberts, VK5BAD, 4 Francis St, Port Elliot 5212 or (085) 54 2112

• **Wanted:** R-5223 rcvr, good price paid for unmodified unit with power cable; must be in wkg order. Ian Hunt, (097) 61 1010 or PO Box 123, Bridgetown 6255

• **Wanted:** Service manual (or photocopy) for Kenwood TS-440S. Will pay all costs. Paul, VK5MAP (086) 51 2398

• **Wanted:** Yaesu FT-7B HF rig &/or serv info & circuits. Adrian, VK5AJR (085) 84 7101 B/H, (085) 87 6242 A/H

• **Yaesu** FT-757GX HF xcvr & matching FP-757HD heavy duty pwr supp, both EC \$1150 the pair. Baylee, VK5BAD (085) 54 2112. Licensed amateurs only.

• **Wanted:** Kenwood RZ-1 DC rcvr/scanner, covers 500kHz-950MHz, as new cond, never used \$600, cost \$1150. Allen, VK7AN (003) 27 1171

• **Kenwood** TS-820 HF xcvr inc DC lead & desk mic \$675. VK7DMJ (002) 64 1530. Licensed amateurs only.

• **Kenwood** TS-940S/AT HF xcvr, as new, with ops & service manuals \$2700. Kim, VK7EV PO Box 281E, East Devonport 7310 or (004) 26 9323. Licensed amateurs only.

• **Yaesu** FT-620 6M SSB/CW/AM xcvr with handbk, VGC \$300. Frank, VK7BC (003) 30 1379. Licensed amateurs only.

• **Wanted:** Packet modem in GC for C-64, will pay postage. Barry, VK8XJ (089) 32 301.

VK5 AREA

• **Gunplexer** pair: M/Acom MA-87127 15mW 10.250GHz, 10.280GHz \$370. **Advanced** rcvr research 30MHz IF wide-band FM rx & Gunplexer control boards \$260 pair. Phil, VK5AKK (08) 370 9184. Licensed amateurs only.

• **Icom** auto ATU. Suit most late-model Icom HF xcvs. Works great. \$300 ono. Michael, VK5ZEA (086) 82 6088

• **Icom** IC-R7100 comms rcvr/scanner plus TV-R7100 TV module & SP-20 ext spkr \$2500. **Yaesu** FRG-7700 HF comms rcvr \$300. **MFJ**-1278BT multi-mode data controller with 2400 & 9600 baud modems \$600. Also 1.8m satellite dish for GMS with LNA & WeFAX card \$300. Brett, weekdays only after 5:30pm (09) 454 4716

• **Wanted:** Kenwood RZ-1 DC rcvr/scanner, covers 500kHz-950MHz, as new cond, never used \$600, cost \$1150. Allen, VK7AN (003) 27 1171

• **Kenwood** TS-820 HF xcvr inc DC lead & desk mic \$675. VK7DMJ (002) 64 1530. Licensed amateurs only.

• **Kenwood** TS-940S/AT HF xcvr, as new, with ops & service manuals \$2700. Kim, VK7EV PO Box 281E, East Devonport 7310 or (004) 26 9323. Licensed amateurs only.

• **Yaesu** FT-620 6M SSB/CW/AM xcvr with handbk, VGC \$300. Frank, VK7BC (003) 30 1379. Licensed amateurs only.

• **Wanted:** Packet modem in GC for C-64, will pay postage. Barry, VK8XJ (089) 32 301.

• **PacComm** PacTOR controller, PacTOR/AMTOR/RTTY, fitted with VHF packet, cables, manuals, sftwre \$450, shipped free within Australia. Ron, VK5RY (08) 264 1210

• **Realistic** HTX-100 10M xcvr, as new \$150. Ron, VK5PCZ (085) 87 6258. Licensed amateurs only.

• **Wanted:** Kenwood TL-922 or TL-922A HF linear amp in GC. Also Kenwood TS-940S xcvr in immaculate cond. Would prefer one equipped with optional CW filts. Steve, VK6VZ (09) 298 9330

• **Wanted:** Kenwood TS-940S, must be GC, also MC-60 mic. Write to Baylee Roberts, VK5BAD, 4 Francis St, Port Elliot 5212 or (085) 54 2112

• **Wanted:** R-5223 rcvr, good price paid for unmodified unit with power cable; must be in wkg order. Ian Hunt, (097) 61 1010 or PO Box 123, Bridgetown 6255

• **Wanted:** Service manual (or photocopy) for Kenwood TS-440S. Will pay all costs. Paul, VK5MAP (086) 51 2398

• **Wanted:** Yaesu FT-7B HF rig &/or serv info & circuits. Adrian, VK5AJR (085) 84 7101 B/H, (085) 87 6242 A/H

• **Yaesu** FT-757GX HF xcvr & matching FP-757HD heavy duty pwr supp, both EC \$1150 the pair. Baylee, VK5BAD (085) 54 2112. Licensed amateurs only.

• **Wanted:** Kenwood RZ-1 DC rcvr/scanner, covers 500kHz-950MHz, as new cond, never used \$600, cost \$1150. Allen, VK7AN (003) 27 1171

• **Kenwood** TS-820 HF xcvr inc DC lead & desk mic \$675. VK7DMJ (002) 64 1530. Licensed amateurs only.

• **Kenwood** TS-940S/AT HF xcvr, as new, with ops & service manuals \$2700. Kim, VK7EV PO Box 281E, East Devonport 7310 or (004) 26 9323. Licensed amateurs only.

• **Yaesu** FT-620 6M SSB/CW/AM xcvr with handbk, VGC \$300. Frank, VK7BC (003) 30 1379. Licensed amateurs only.

• **Wanted:** Packet modem in GC for C-64, will pay postage. Barry, VK8XJ (089) 32 301.

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You may fax your classified to (03) 670 9096 only if under 25 words

PAGE 66 — Amateur Radio Action - December 1994

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